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ORIGINAL ARTICLES.

THE RELATION OF CHEMISTRY TO MEDICINE.

OSWALD L. SCHREINER, Ph. G., Baltimore, Md.

It would be pure, inexcusable ingratitude upon the physician's part to ignore the assistance of chemistry in his professional career. Chemistry has without a doubt done more to further the art and science of medicine, than all the other allied sister sciences. The progress of the healing art is in direct proportion to the advance in chemistry; daily this fact is verified by the articles mentioned in the prescription of the physician. He no longer (or very seldom, at least,) orders a long list of crude drugs to be comminuted, and an infusion or decoction to be prepared, as was the custom not so very long ago; but he now orders mostly the active constituent, be it alkaloid, glucoside, volatile oil, resin, or oleoresin, of the drug, combined with definite inorganic compounds, or even with one or more of the newer synthetic remedies, whose number has increased so remarkably within the last decade. Are all these not directly or indirectly the product of chemical science? Had not their discovery or manufacture a bearing upon chemistry? Was not in their production chemical force or affinity called into action? Or is not chemical action going on in the animal system at all times, and when these remedies are administered, is not chemical reaction taking place between them and the constituents of the individual cells? Let us then consider this subject in historical order.

Many of the inorganic compounds were known to the ancients, but were not very extensively used in medicine; vegetable and animal drugs were the remedies then in vogue. It would be useless to mention the many curious and ridiculous animal remedies of the past; they have been mentioned so often. After a time chemical facts became more and more known through the untiring alchemist, then in search of the method or process by which the baser metals could be changed to gold, and always on the look-out for the "elixir of life," by means of which the old, feeble and unhealthy might be changed to eternal youth and health. As he, never abating, never lacking energy to discover these impossibilities, formed a new compound, his first duty was to ascertain how much nearer he was to his great object. Finding that his compound was not gold, contained no gold, and no gold could come of it, he would try it upon the animal system, to ascertain its action thereon. Thus the physiological properties of these compounds were being ascertained and put to practical use in combating disease. The barbaric remedies were fast losing ground. The *art* of chemistry still advanced, more facts were continually added to the list; but it remained for Lavoissier, the "father of the science of chemistry," and Dalton to discover the relation existing between these facts and chemistry became a *science*.

By this chemistry received a new impetus, the newly created science prospered, and medicine had gained a valuable ally. Physiological chemistry grew and

prospered from the mother science. Much has been achieved by this branch and doubtless more will be done; the field is broad, the work is interesting, and much remains to be known. The results achieved by this branch will not be reviewed here, they are known to all. We call physiological chemistry a branch. Yet is it a branch of chemistry or of medicine. The point is hard to decide.

By this time the barbaric remedies had almost entirely disappeared; vegetable drugs and inorganic compounds had replaced them. With the aid of chemistry, man now sought out the active parts of such important drugs as opium, cinchona, etc. Since the time of the discovery of morphine by Sertürner, medicine has continually been enriched with active medicinal agents. Still their number is increasing, still they come, the end is not yet. To-day the active constituents of almost every drug are known; many of these have been applied advantageously in the treatment of disease. Not only do these substances exist as a concentrated part of the drug from which they are obtained, but they have been investigated by the chemist and found to be definite chemical compounds, that is they never vary in their composition. They have been classified into groups. For instance, the volatile oils, the mixed oils, the alkaloids, the resins, the glucosides, etc. all fall into groups, the members of which show allied chemical constitution and properties. The constitution of these compounds—that is, the relation which the atoms or groups of atoms bear to each other in the molecule of the compound—has and is yet being investigated. Many are already known, and their constitution being known, they can be prepared synthetically by the chemist, by means of a series of chemical changes. During the investigation of these compounds the chemist formed many derivatives of them, some of which have become valuable therapeutic agents, such as apomorphine obtained from morphine or apocodeine from the allied alkaloid codeine.

In the attempt to form the alkaloids synthetically many new intermediate products are being discovered, whose physiological action is then ascertained by experiments upon the lower animals. In this manner many of the valuable "coal tar derivatives" have been obtained. The physician can assuage pain and reduce dangerous fever by means of the antipyretic, analgine and hypnotic remedies in cases against which his forefathers were completely powerless. In the course of manufacture and investigation of the aniline colors many of these compounds are formed. Our most valuable remedies of to-day were discovered in this or similar manner; salicylic acid, salol, phenacetine antipyrine, acetanilid, sulphonal, trional, tetronal, etc.

In 1869 Mendelejeff gave to chemistry its most important, the fundamental law of chemistry, the *periodic law*. It may be briefly stated as, "the properties of an element are functions of its atomic weight." Since the announcement of this law it has not only been proven that physical and chemical properties are functions of the atomic weight, but also that the action upon the animal system bears a relation to the atomic weight. The physiological action of the elements in reference to the periodic system has been investigated by Dr. Curci of Italy. The results obtained by this investigator may be briefly stated. If we take the elements of group I of the periodic system, we will find that those with the lower atomic weight act mostly upon the muscles, while those with higher atomicity act strongly upon the nervous system. They may be arranged as follows:

Act on the muscles.
Cs, Rb, K,—Li—Na—Cu, Ag, Au.
Act on the nerves

Lithium and sodium connect cæsium, rubidium, and potassium, on the one side, with the copper, silver and gold on the other. The elements of group II may be similarly arranged.

Act on the muscles.
Ba, Sr, Ca,—Be—Mg—Zn, Cd, Hg.
Act on the nerves.

The other groups may be taken up in like manner. Thus we see that those elements which are most closely related to each other in chemical properties, also resemble each other remarkably in their action upon the animal system.

Analogy or identity in chemical composition, however, is not a guarantee of similar physiological action. Ammonium cyanate and urea, or acetic acid and methyl formate contain the same elements in the same proportion and quantity, that

is, they have the same identical chemical composition, yet their physiological properties differ, due to a different atomic arrangement. Thus,

Ammonium cyanate. Urea

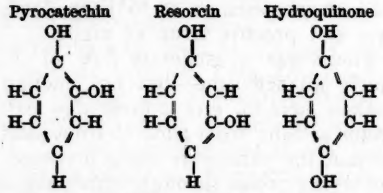
$NH_4 \backslash CN / O$ $NH_2 \backslash NH_2 / CO$

Acetic acid Methyl formate

$C_2H_3O \backslash H / O$ $CHO \backslash CH_3 / O$

Physiological action is therefore dependent upon the arrangement of the atoms within the molecule of the substance. Further, we may also say that physiological action is at least modified, if not changed completely, according to the relation the groups of atoms or radicals bear to each other in the compound. Pyrocatechin, resorcin and hydroquinone are in chemical constitution closely allied, differing only in the relative position of the two hydroxyl groups (OH) contained in the molecule. This difference may be noticed by comparing their constitutional formulas here given.

Pyrocatechin Resorcin Hydroquinone



In pyrocatechin the two hydroxyl radicals (OH) are represented as adjoining each other (ortho-position), in resorcin they are alternate (meta-position), and in hydroquinone opposite to each other (para-position). While the physiological properties of these compounds are similar they are not wholly identical. Again, in the manufacture of that excellent remedial agent, phenacetine, only para-phenetidin is used; before being acetylized it is carefully separated from the ortho-phenetidin which accompanies it. Exactly why these differences in property should be so, we do not know.

Further, the substitution of one radical for another in a compound will increase or diminish its therapeutic value. As illustration of this we may take sulphonal and the allied compounds, trional and tetronal. Trional is sulphonal in which one of the two methyl groups (CH_3) has been replaced by an ethyl group (C_2H_5); while in tetronal two ethyl radicals have replaced the methyl groups in sulphonal. In other words, sulphonal contains two methyl radicals, trional one ethyl and one methyl radical, and tetronal two ethyl radicals, otherwise the compounds are identical. Their relationship will be readily seen by a comparison of formulas.

Sulphonal Trional Tetronal

$C\begin{cases} SO_2C_2H_5 \\ SO_2C_2H_5 \\ CH_3 \\ CH_3 \end{cases}$ $C\begin{cases} SO_2C_2H_5 \\ SO_2C_2H_5 \\ CH_3 \\ C_2H_5 \end{cases}$ $C\begin{cases} SO_2C_2H_5 \\ SO_2C_2H_5 \\ C_2H_5 \\ C_2H_5 \end{cases}$

Tetronal is, according to Baumann and Kast, twice as powerful as sulphonal; trional occupying an intermediate position in therapeutical effect as well as in chemical constitution.

We will now consider a most important part, namely the modification of compounds by the chemist to meet the requirements of the therapeutist. We will select as an illustrative case the recently introduced antipyretic "phenocoll," a derivative of phenacetine. The only objection to the excellent phenacetine is its almost entire insolubility in water. Its innocuousness is believed to be due to the presence of the oxyethyl group; a group not present in antipyrin nor acetanilid, hence their toxicity. For instance, benzocoll, which differs from the innocuous phenocoll only in *not* containing the oxyethyl group, possesses the toxic properties of acetanilid. The problem then as placed before the chemist by the therapeutist, was to render the insoluble phenacetine soluble, without affecting the oxyethyl group, and without destroying its antipyretic property. The numerous soluble compounds which were produced, were all found to be devoid of antipyretic properties. The introduction of a salt forming amido group into the acetyl residue of the original acetyl-amido group was then tried. The product, amido-acetyl-phenetidin or "phenocoll," retains the innocuousness and prompt antipyretic action of phenacetine, while it is, when in combination with acids as salts, very soluble. It is claimed to be more prompt in action than the latter substanc, one to its greater solubility and consequent more rapid absorbtion. Here we see chemistry lending a helping hand to therapy, not only in producing new substances which may be used in its do-

main, but also modifying such substances to meet certain requirements of disease.

In glancing over this field of research the question presents itself to the inquiring mind: What wonderful remedies may not the future have in store for us? What may not the future chemist and physiologist bring to light? Can the mind conceive the day when these relations between chemical properties and constitution and physiological action will be known; when physiological properties may be predicated with certainty of a compound which does not as yet exist, but whose chemical composition and constitution is known. When the periodic system was first formed, there were found gaps in the series of elements. Mendelejeff claimed that elements would yet be found which would fill these vacancies; and by means of his admirable law he described the properties of these elements and stated their atomic weight and valence, years before they were discovered. Three of the elements have since been discovered and found to possess the properties assigned to them.

Chemico-physiologic research is in the proper channel; it may be likened to a river, continually gaining volume, force and extent as it rolls onward to its destination—the health, happiness and welfare of the human race.

PLACENTA PREVIA CENTRALIS: REPORT OF A CASE—TREATMENT, ETC.*

J. CAMPBELL EDIN, M.D., C. M. (McGILL,) L. R. C. P., SEAFORTH, ONT.

I was called on the 16th of April last at 11 p. m. to see Mrs. B., of Seaforth, who was over eight months advanced in her eighth pregnancy.

She was not in labor, but was alarmed on account of a sudden hemorrhage which had taken place without pain. Upon enquiry ascertained that a similar flow of blood had taken place under the same conditions about the middle of February, and again about the same time in March, but she had not called in a physician. The discharge, however, upon this occasion was more profuse than upon either of the previous occasions.

Made a digital examination and found the internal os covered by a soft spongy substance. By pressing the uterus firmly down, could feel a hard body above the spongy mass in question.

The cervix was rigid and undilatable. The examination caused some pain with a slight increase of the discharge. My diagnosis was placenta previa centralis. Told the patient and her friends that she was not going to be confined that night. With the idea of relaxing the parts and producing rest—gave her gr. xvi of chloral hydrate and repeated with gr. viii every half hour until she was asleep, which was within the hour when I left her for the night.

From this time we kept a close watch upon our patient, keeping her under the influence of the chloral—with an occasional dose of morphia, so as to keep down all pain and procure sleep at night.

There was a moderate flow of blood nearly all the time—but not enough to weaken her to any appreciable extent. Examinations from time to time satisfied me that the parts were being prepared for the trying ordeal through which she must sooner or later pass.

On the morning of the 21st, while on my way to the patient's house, met a messenger coming for me with a note which stated that she had flooded more profusely than ever before.

When I reached the house and saw the amount of blood passed and examined the patient—I made up my mind that the time for action had arrived.

Asked for a consultation with another physician when the assistance of my townsmen, Dr. Smith was procured.

A careful digital examination revealed the lower surface of the placenta, which could be felt through the cervix, its rough spongy texture rendering mistake almost impossible. It was a clear corroboration of my previous diagnosis. The index finger could be passed beyond the free edge of the placenta on the right side of the patient, and high up could be felt the vertex presentation in the second position.

*Read at the meeting of the Ontario Medical Association held in Toronto, June 6th and 7th, 1894.

There was every evidence that the unavoidable hemorrhage was due to the placental separation as a consequence of cervical dilatation.

The gradual loss of blood as previously related, which had been going on for some days, with the fact that there was no doubt as to the actual condition with which we had to deal, called for immediate treatment, to save if possible both mother and child.

In regard to the latter, however, palpation and oscultation gave little hope to expect the delivery of a living child.

Upon consultation it was decided to put the patient under chloroform — dilate with the hand—turn by the bi-polar method (if possible,) and deliver without any more delay than would be absolutely necessary—using the forceps for the delivery of the head, if required.

The consent of the patient and her husband having been obtained, she was carefully prepared for treatment as follows: The lower limbs, from waist down, were sponged with hot bi-chloride solution—care being taken to thoroughly cleanse the vulva and surrounding parts.

The vagina was carefully irrigated with a hot carbolic solution 1 to 40, from a fountain syringe and the patient placed upon a perfectly clean compress of folded sheets. After a careful use of the nail brush on my hands and arms and washing my hands for several minutes in hot carbolized water, and afterwards immersing them in a 1 to 2,000 solution bi-chloride of mercury, I felt that nothing had been neglected to render everything in contact with the patient thoroughly aseptic.

We have thus minutely described the preparation of the patient, as we positively believe that her excellent recovery depended in a great measure on the antiseptic precautions used.

As soon as my assistant had got the patient under the influence of the chloroform I lubricated the back of my right hand with boric acid ointment and proceeded to pass it into the vagina. After this I began dilating the os and cervix which we found tolerably dilatable, using first one finger, then two, next three, and lastly the whole hand.

I passed the hand up the right side where the placenta was partially detached until I reached the bag of waters, and by pressing down the uterus with the left hand was able to rupture them. I could distinctly touch the head of the child, and by internal and external manipulations was able to turn by what is known as the bi-polar method—and got hold of a foot which I brought well down—and all hemorrhage ceased.

I describe this the more particularly as most authors omit any description of the operation, and others who describe it never performed it themselves and either speak too lightly of it or surround it with unnecessary warnings which are apt to frighten rather than aid the inexperienced operator.

Pains now came on at regular intervals and we used traction during each pain. We had some difficulty in getting the arms down as they were extended over the head of the child. We succeeded and the head engaged in the superior strait. The real difficulty now began. I found that with all my art and as much force as was justifiable I could not deliver the head. Upon particular examination I made up my mind that we had a hydrocephalic head to deal with, which diagnosis was afterwards proved to be correct We now had recourse to the forceps, which was in readiness for such an emergency. I managed to apply them without much difficulty and directing the doctor to press firmly on the uterus, made traction during the pains and soon had the head in the world. The placenta followed shortly afterwards, its expulsion being aided by Crede's method.

No ergot was given owing to the nausea occasioned by the chloroform. The whole operation as described occupied only about thirty-five minutes. After allowing the patient to rest for a few minutes, the clothing was carefully changed and the external parts and limbs sponged carefully with the antiseptic solution. The bandage and compress over the uterus were then applied and over the vulva was placed an antiseptic pad.

Severe after pains which followed were relieved by hypodermic injections of morphia.

The after treatment consisted in syringing the vagina night and morning with hot carbolic acid lotion and in giving a mixture of magnes. sulph., which produced on an average three loose motions daily, and most effectually prevented any trouble from the secretion of milk.

The temperature never rose even one degree; she made an uninterrupted recovery.

Remarks:—There is no complication in pregnancy more trying to the physician than placenta previa, and by trusting to the old method of plugging and waiting, the case drags slowly, a constant source of danger to the patient and anxiety to her attendants.

By the new method—namely, the induction of premature labor—under antiseptic precautions and the disuse of the tampon as a means of controlling hemorrhage, we avoid the danger of septicemia on the one hand and fatal hemorrhage on the other. Moreover it can be shown that the chances of life to both mother and and child, but especially to the mother, are much improved by the new method.

Dr. Simpson, of Edinburgh, who compiled a table of 399 cases, shows that 115 of the mothers died, or 1 in 3. Muller reckons that the death rate to mothers by the older methods was 36 to 40 per cent.

By prompt induction of labor, Thomas had two deaths in 11 cases. Hecker had 3 in 40 cases. Hoffman 2 in 30 cases, and Murphy 15 cases without a single death.

By the use of the plug—no matter how aseptic it is made, the cervix with its bleeding vessels is exposed to the air, with its poisonous germs—the very condition that makes compound fractures so much more serious than simple ones.

By the method we advocate, this danger is avoided.

Conclusions:—In conclusion then we contend that in the treatment of placenta previa the following rules should be followed:

1st. Terminate gestation as soon as possible.

2nd. Control the hemorrhage by the introduction of the hand into the vagina—the index finger through the cervix, and separate the placental attachment as far as possible.

3rd. Discard the tampon as a fruitful source of infection.

4th. Use the hand in dilating the cervix after the manner we have just described—turning by the bi-polar method—if possible.

5th. Take aseptic precautions previous to the operation and carry out the most approved antiseptic treatment afterwards.

A NEW OPERATION FOR PILES.

J. S. WIGHT, M. D., Brooklyn, N. Y.*

The instruments required are: a pair of tenaculum forceps; a strong curved needle; a pair of pressure forceps, with slightly curved jaws that are about four centimetres in length; and a pair of scissors curved on the flat.

The pile is gently drawn down with the tenaculum forceps, and then clamped with the pressure forceps. All that part of the pile below and outside the pressure forceps is cut off evenly with the scissors; a knife may besubstituted for the scissors. The needle is armed with a cat-gut suture of proper strength; and the suture is carried around and above the jaws of the pressure forceps, so as to embrace and include all the stump of the cut-off pile; that is, the suture is a continuous one. One end of the suture projects from one border of the pile stump, and the other end projects from the other border. The ends of the suture are now put together in the first step of the surgeon's knot. Then the pressure forceps are unlocked and gently removed, being extracted from the loops of the continuous suture, which is at once drawn tight and the tying completed. If these movements are well executed, there will be no hemorrhage, the wound made by the excision of the pile being securely closed. Each pile, in its turn, is dealt with in the same manner, the pressure forceps being applied in such direction as the judgement of the operator may dictate.

This method of operating has the following advantages: (1) Easy and rapid work; (2) Absence of hemorrhage; (3) Complete excision of the piles; (4) The suture-ligatures take care of themselves; (5) Repair with a small quantity of scar-tissue; (6) The patient can get out of bed in a few days; (7) A good result is quickly obtained.

* Professor of Operative and Clinical Surgery at the Long Island College Hospital, Brooklyn, N. Y.

COMMUNICATIONS.

NON-OPERATIVE METHODS OF TREATING ANAL FISSURE OR IRRITABLE ULCER OF THE RECTUM.*

LEWIS H. ALDER, JR., M. D.,† PHILADELPHIA, PA.

When anal fissure is of recent origin and not associated with much spasm of the sphincter muscles, there is a fair prospect of cure without operative procedure.

This statement is made advisedly and in the face of a criticism, published in *Mathews' Medical Quarterly*, ‡ of the writer's brochure, "Fissure of the Anus and Fistula in Ano," ‖ in which the following statement is made: "It is a pity that this admirable little work wastes so much time in discussing the palliative (?) treatment of the disease [fissure]. In an affection so simple in its etiology and pathology, and that can be so quickly and radically cured by divulsion of the sphincters, it seem a great loss of time to talk about applying ointments, when it is a recognized fact that not one case in ten is ever benefited by their use."

I do not doubt that the reviewer honestly expressed himself in the statements quoted; and furthermore that the opinion given—that not one case in ten is ever benefited by other means than operative measures — is based upon personal experience. But I must be pardoned for dissenting from the same views, as my experience, whilst not an extensive one, is ample to justify a more conservative treatment of many of these cases.

I am well aware that the operative treatment of fissure is a simple procedure and that the disease is quickly cured by its execution; but I am likewise conscious of the fact that many persons object strenuously to any operation.

No matter how trifling its import be to the surgeon, an operation to the patient is something which is dreaded, and it behooves the practioner to remember that the majority of persons are unwilling to submit to operation until they are person ally convinced that such a course is the ultimatum.

It is my purpose in presenting this paper to indicate how over 75 per cent. of the cases of fissure of the anus which have come under my observation, both in hospital and private practice, have been cured by non-operative measures. No less an authority than Allingham¶ states that the curability of this lesion does not depend upon the length of time it has existed, but rather upon the pathological changes it has wrought. He also adds that he has cured fissures of months' standing by means of local applications, where the ulcers were uncomplicated with polypi or hemorrhoids, and where there was not any marked spasm or thickening of the sphincters.

It is essential to the success of the treatment of fissure by local applications, that rigid cleanliness of the parts be maintained; for this purpose the anus and the adjacent portions of the body should be carefully sponged night and morning and after each stool with tepid water. It is also highly important that attention be given to the condition of the patient's bowels. Regularity of habit should be established, and the evacuation rendered semi-fluid—as figured or hard stools materially aggravate the symptoms.

To accomplish these purposes, enemata or mild aperients should be employed, and the diet must be regulated, the use of bland and unirritating food being enjoined.

All drastic purges should be avoided, as they are more or less irritating to the extremity of the rectum. To establish a daily evacuation of the bowels and to render the movement as painless as possible, I am in the habit of ordering an enema of warm water, or one of rich flaxseed tea, say from half a pint to a pint, to be administered every evening; preference being given to the night time, as then the

*Read before the American Medical Association, June, 1894.

†Professor of Diseases of the Rectum, Philadelphia Polyclinic and College for Graduates in Medicine; Surgeon to the Charity Hospital, etc., Philadelphia, Pa.

‡ January, 1894, vol. i, No. 1, page 185.

‖ Physicians' Leisure Library Series, 1892. Geo. S. Davis, Publisher, Detroit, Mich.

¶ "Diseases of the Rectum," fifth edition, London, 1888, page 215.

patient can assume the recumbent posture, which, combined with the rest, affords the most relief from subsequent pain.

If the first enema proves ineffective, it should be repeated in half an hour. In order to relieve the pain and spasm of the sphincters attending the evacuation, it is well to use a suppository about half an hour before the injection is employed, consisting of:

℞ Ext. belladonnæ..... ½ to ½ grain
Ext. opii sq..... ¼ to ⅓ grain
Ol. theobromæ..... 10 grains
Misce et fiat suppositoria j.

Or an ointment of conium may be used as recommended by Mr. Harrison Cripps:*

℞ Ext. conii..... ʒ ij
Olei ricini..... f ʒ iij
Ung. lanolinii.....q. s. ad ʒ i j

A small quantity of this ointment should be smeared on the part five minutes before expecting a motion, and again after the bowels have been moved.

In applying any of the various local remedies to an anal fissue it is necessary first to expose the ulcer to view, which can be done by means of the fingers of the operator or his assistant, and to anæsthetize its surface with a 4-per-cent. solution of the hydrochlorate of cocaine, well brushed in with a camel's-hair pencil or with a piece of cotton attached to a probe. The application of the cocaine may have to be repeated once or twice, at intervals of three or four minutes, in order to obtain the desired anæsthetic effect. If any ointment has been used about the fissure, the anus should be subjected to a hot-water douche before using the cocaine, as this drug will not exert its anæsthetic influence on a greasy surface.†

Among the different remedies that have been used in the local treatment of fissure of the anus may be mentioned the following: Nitrate of silver; acid nitrate of mercury; fuming nitric acid; carbolic acid: sulphate of copper; the actual cautery; and chloral hydrate.

Of these topical applications the nitrate of silver is the best. Its effects are various: it lessens or entirely calms the nervous irritation which is so important a factor in producing spasmodic contraction of the sphincters; it coats and shields the raw and exposed mucous surface by forming an insoluble albuminate of silver; it destroys the hard and callous edges of the ulcer, and tends to remove the diseased and morbid action of the parts.

The form in which I usually employ this salt is in solution (from 10 to 30 grains to the once). The stick caustic may be also used.

To accomplish the best results, the solution should be used once in twenty-four or forty-eight hours, according to circumstances. It may be applied by means of cotton attached to a silver probe or to a piece of wood.

The application is made by separating the margins of the anal orifice with the thumb and index finger of the left hand, and introducing into the anus the probe charged with the solution. The argentic nitrate is to be applied to the fissue only; a few drops are all that is required. If thorough local anæsthesia has been induced by the use of cocaine, the application of the silver salt produces little (if any) suffering, for by the time the anæsthetic has lost its effect the otherwise acute pain of the nitrate of silver will have passed away.

After each application the part should be smeared well with an ointment of iodoform (30 grains to the ounce). The odor of that drug may be disguised by the addition of a few drops of attar of roses. Iodol may be used instead and in the same way, but I prefer the iodoform, owing to its anæsthetic qualities.

After the ulcer has been touched once or twice with the silver solution, the effect will be, in the cases that are benefited by this treatment, a considerable mitigation of the pain from which the patient suffered when at the closet and afterward, and the sore will present a healthy, granulating appearance and will slowly contract in size.

Unless the fissure be complicated with some other affection, in children and in young persons it is almost always curable by adopting the mode of treatment laid down.

Some authorities speak highly of the use of the acid nitrate of mercury, fuming nitric acid, carbolic acid, the actual cautery, etc., but in my opinion their employment is attended with more suffering than follows the use of the nitrate of silver.

*"Diseases of the Rectum and Anus," second edition, London, 1890, page 189.

†W. P. Agnew. M. D., "Diagnosis and Treatment of Hæmorrhoids. etc.," second edition, San Francisco, Cal., 1891, page 91.

The daily introduction of a full-sized bougie, made of wax or tallow, will sometimes act beneficially in cases of fissure by stretching the sphincter and producing such an amount of irritation as will set up a healing process in the ulcer. An application of cocaine or of belladonna ointment should be made to the part previous to the employment of the bougie.

In the treatment of anal fissure Allingham strongly advocates the local use of the following ointment:

℞ Hydrarg. subchlor..... 4 grains
Pulv. opii
Ext. belladonnæ } āā..... 2 grains
Ung. sambuci..... 1 drachm
M. S.: To be applied frequently.

He states that he had many cures with this ointment alone. Another excellent ointment recommended by the same authority, is:

℞ Plumb. acetatis
Zinci oxidi } āā..... 10 grains
Pulv. calaminæ..... 20 grains
Adipis benzoinat..... ½ ounces
M.

An ointment of the oxide of mercury, 30 grains to the ounce, has cured many cases.

In conclusion, I would emphasize the fact that in many cases anal fissure, uncomplicated with other rectal affection, is curable by means of non-operative methods of treatment.

A SUGGESTION UPON THE PREPARATION OF THE FINGERS AND NAILS FOR SURGICAL OPERATIONS.*

OSCAR H. ALLIS, M. D., PHILADELPHIA.

The nails form no mean part of a surgeon's outfit. As a covering to the finger they give confidence; in the threading of needles they are often indispensable while often, when working among adhesions, they may serve a good turn. If the nails are too long they are in the way, and if too short, a privation. A medium length of nail is an exceedingly valuable helper at times. With some the length of nail is governed by the ability to keep it clean. Hence the nail is kept very short —much to the disadvantage of prehension, in which man excels.

The surgical care of the nails has had its full share of attention. The nail-brush forms a part of every physician's and surgeon's outfit. It is cheap, compact, and moderately thorough. Its disadvantages are that if stiff it is apt to scratch the hand or cut beneath the nails; if soft, it is of little value. To supplement the defects of the brush, some persist in using the point of the nail blade of their pocket-knifes. I say persist in using—as much has been written against the practice. Not only is there danger of cutting the flesh beneath the nail, but it leaves the under surface of the nail rough, making it a ready collector of filth, and less easily cleaned for a subsequent operation.

To avoid the knife I have long used a little wedge-shaped piece of soft pine. This, when wet, frays up, makes a kind of mop, is a good carrier of soap, and enables me to wash out under the nail. The objection to my device was that the pine too rapidly frayed out, became bulky, and required frequent trimming. Finally I hit upon the rubber eraser. A variety is made for artists and school-children that is wedge-shaped. This is ready for use as it is found at the stationer's, though if made a little sharper it is softer and more like a mop. It is pliable, soft, and an excellent carrier of soap.

For the hand, generally the old-fashioned wash-rag cannot be improved upon. It is a good carrier of soap, and with it each finger in turn can be tightly caught and wrung until it is clean. With the nail or hand-brush only the back and front of the fingers get the scrubbing.

In addition to the implements usually deemed important for the cleanliness of the under surface of the nails, a very valuable one is the nail itself. Noticing that a young lady's fingers whom I frequently met were always exceedingly neat, I make bold to ask her method, and was surprised to find that she had nothing more modern than a pair of scissors to trim her nails, and that with wash-rag and the tips of her finger-nails she kept her hands in most perfect order. One thing that may be said of the finger-nail as a nail-cleaning instrument, is that it will not scratch the under surface of the nail, a very important factor in the process, whether one aims at beauty or cleanliness.

* Read before the Philadelphia County Medical Society, June 13, 1894.

ADENOID GROWTHS IN THE DOME OF THE NASO-PHARYNGEAL SPACE.*

J. MORRISON RAY, M. D., LOUISVILLE, KY.

I desire to ask your consideration for an affection of the glandular circle, that under normal conditions surrounds the upper respiratory passages. It consists of an hypertrophy of the collection of lymphatic tissue in the dome of the naso-pharyngeal space and has been variously called hypertrophy of Luschka gland, enlargement of the pharyngeal tonsil or adenoid and lymphoid growth in the roof of the naso-pharynx.

The frequency with which we see children allowed to suffer for years without the recognition of a trouble that leads to a blocking of the naso-pharyngeal space, which, besides interfering with the proper physical development of the child, lays the foundation for an ear trouble that lasts throughout life, is a sufficient reason for presenting the subject for consideration.

It is desirable that the general profession with whom this class of sufferers first come in contact should be apprised of its importance and the promptness with which relief can be obtained.

Recent investigations seem to throw considerable doubt on the question as to whether the normal naso-pharynx contains any visible enlargement of lymphatic tissue. There is no doubt that the mucous membrane in this region abound in submucous collections of lymphoid masses continued upward from the visible aggregation between the pillars of the fauces. What constitutes a healthy appearance of this region is still in dispute.

In my expenience in adults, the normal vault of the pharynx is perfectly smooth, and when I have found depressions, folds, or thickening, there have been symptoms giving evidence of naso-pharyngeal discomfort and a history that pointed to the probable existence in childhood of adenoid growths. In children examinations by the rhinoscopic mirror is often impossible and therefore we must depend upon the results of exploration by the finger or post mortem appearance. The former is not usually resorted to unless there are symptoms pointing to this region and the latter has not in my knowledge been extensively undertaken.

Wright claims "That the vault of the normal pharynx in the infant is a comparatively smooth walled cavity."

The investigation of Killian and Swain seem to show that the so-called Luschka's tonsil has an inconstant embryonal existence, and does not present as such in the normal adult throat, or even often in childhood.

Meyer found 1 per cent. present in 2,000 examinations, Chappell in 2,000 school children examined for the prevalence of throat diseases 3 per cent. had adenoid tissue in abundance. Bliss out of 405 children discovered adenoid in 79. Bronner claims that 4 or 5 per cent. of all children have naso-pharyngeal obstruction from these growths.

We must therefore look upon the presence of visible adenoid tissue in the vault of the pharynx as a pathological condition, often present in childhood, rarely existing in the adult, but like its analogues—the faucial tonsils and the lymphatic tissue lower down in the intestinal tube, begins to atrophy as adolescence is obtained.

During childhood the lymphatic system enjoys its greatest activity, hence at this time they are prone to become the seat of pathological changes that interfere with their nutrition or retrograde metamorphosis. They are often associated with enlarged faucial tonsils and with cervical adenitis.

Heredity plays a part in their development. All observers agree to have seen a number in one family, I have operated on two in the same household. The condition may be congenital.

I have under observation now an infant six weeks old, brought to me for a purulent ophthalmia, in which the mother says there has been difficulty in nasal breathing and a peculiar noise that indicates some obstruction in the naso-pharynx since birth. The child has difficulty in feeding, frequently relinquishing its hold of the breast in order to get air. Examination through the anterior nares shows patulent nostrils, and there is

* Abstract of a paper read before the Louisville Medico-Chirurgical Society, March 23, 1894.

not present excessively enlarged faucial tonsils: The throat space is so small I cannot get my finger well into the vault, yet I am certain that the naso-pharynx contains a quantity of adenoid growths and will require removal before relief is obtained.

Bosworth asserts that a constitutional condition difficult to definitely describe and only one step removed from scrofula, is present in all cases. Racial conditions play an important part. The Jewish race seem to suffer the most. The negro race are remarkably free from this condition; from their well known proneness to suffer from so-called strumous affections this seems anomalous. Yet in my service at the Universary Dispensary where the colored race largely predominates and where so-called scrofulous eye diseases flourish I have encountered in two years, only one case of well defined adenoids and that was a mulatto with the facial type of the Anglo-Saxon. Among the exciting causes the most important is diphtheria and the exanthematous fevers, especially scarlet fever, the patient or his parents being unconscious of any difficulty in nasal breathing until after these diseases. Climatic condition and repeated attacks of so-called head colds probably favor actively in the lymphatic tissue and thus enlargement of adenoid growths.

Woakes prefers the name "Lymphoid Papillomata" and argues that since in their local appearance and tendency to spontaneous disappearance after puberty like warts on the hands, etc. that this is the better name.

In young subjects the amount of fibrous tissue present seems to be small; but when found in children of ten or twelve years of age the growths are much firmer to the touch, less likely to bleed when handled and when examined microscopically show a far more abundant development of fibrous and connective tissue and less so-called lymphatic tissue. This condition will be found to have considerable importance in deciding the method of operation for their removal.

The diagnostic symptoms are both local and general. To one accustomed to see such cases, the facial expression, the round shoulders, and contracted chest are often sufficient. The so-called adenoid physiogomy is familiar to many—consisting of a pinched nasal aspect, elongated face, open mouth, listless dull expression, a peculiar dead nasal twang to the voice and lateral compression of the chest with marked prominence of the sternum, so-called pigeon breast, and more or less prominent in well defined cases. The respiratory symptoms are those of mouth breathing, especially bad at night, constituting the snorer, with restless, loud breathing, frequently interrupted by paroxysms of suffocation and wakefulness. The local symptoms are found both in the nose, throat and ear. The nose generally shows some turgescence of the turbinated, rarely deviation of the septum, and often more or less anterior discharges of mucus that frequently excoriate the nostrils due to the child's inability to blow the nose. The lips will be dry and often fissured, and the tongue furred from mouth breathing. A condition present in many cases is the high arched palate and contracted jaw, with irregular and decayed teeth. I have recently seen a case operated upon, one and a half years ago, in whom the teeth were much distorted and decayed, and a dentist has stated to me that the teeth were much more amenable to treatment since the removal of the cause of the mouth breathing.

I am convinced that cases of excessively enlarged faucial tonsils have always associated with them adenoids, and frequently masses of lymphatic tissue can be seen studded over the oro-pharynx, or as a ridge passing up the lateral walls.

Since the disease is almost entirely confined to children between the ages of three and fourteen, it is often impossible to view the naso-pharynx by the aid of the mirror, therefore, the final point in diagnosis must be made by exploration of the pharyngeal vault by means of the finger. The index finger passed gently into the mouth and against the back-wall of the pharynx can be carried up behind the palate, and the region of the naso-pharynx thoroughly explored. When passed well up the posterior, free edge of the nasal septum and the opening of the nares can be easily felt; on either side, the pharyngeal mouth of the eustachian tube are readily recognized, and the vault swept by the end of the finger.

The symptom depended largely upon by Bosworth, is the spraying of vaseline into one nostril, and if there are no adenoids present, the clouds of vaporized oil will

return through the opposite nostril,—if adenoids are present, no return is noticed from the other nostril. This symptom I am convinced, is of little importance, for the vapor will return unless the naso-pharynx is completely occluded, and when this condition is present, the diagnosis is self evident from other well-known symptoms. Numerous other symptoms have been dwelt upon by various writers but are, I think, of minor importance and only corroborative.

One of a general nature dwelt upon by Guye is what he calls aprosexia and consists of mental hebetude, headache, listlessness, inability to fix the attention and show progress in learning. He claims that this is due to the intimate connection of this region with the cranial cavity through the numerous openings for lymphatics and blood vessels in the sphenoid bone and interference with lymph drainage from the cranial cavity. Others have verified these observations and claim marked improvement in the mental condition by removal of the obstruction.

To my mind the most important lesion resulting directly from this disease is the interference with the organs of hearing. Happily the modern otologist has begun to recognize the fact that the majority of ear troubles are due directly to diseases of the naso-pharynx, and therefore routine examination of these parts is carried out. The majority of adenoid subjects first seek relief for ear trouble. The exact causes of the ear disease present has not been definitely settled. Whether it is due to direct obstruction by pressure of the growth against the mouths of the eustachian tubes, whether to interference with ventilation by preventing the free entrance of air into the naso-pharynx, whether by direct extension of the frequent attack of acute inflammation to which these growths are prone, or to stagnation of the return circulation by pressure of these growths upon the pharyngeal veins, as suggested by Blake, is of no importance from a therapeutic standpoint; probably all are factors, for we do not find abundant tissue or decided obstructed breathing in all cases with ear complications. Blake estimates that 80 per cent. of children with adenoids have ear trouble. The ear trouble consists in recurring attacks of acute middle ear inflammation with suppuration or not, frequent during the winter when children are exposed to the influences of winter changes. These attacks eventually lead to chronic deafness or pus discharges that resist all local medication.

Barrett and Webster, from a study of two hundred cases, go so far as to say that not only are all the middle ear diseases of children traced to the presence of these growths, but the deafness of adults is largely dependent upon the presence of adenoids in earlier life, and thus the establishment of changes that produce later on permanent ear disease.

The treatment of these growths depends upon their character, size, the age of the patient, and the symptoms requiring relief. No doubt attention to the general health by the administration of constructives is often indicated, for by correcting anæmia and aiding in tissue building we hasten growth in the child, and as the naso-pharynx enlarges, the growths are carried farther from the soft palate and the breathing space is correspondingly increased. In my experience local application of medicaments such as caustics or astringents are of no importance and simply produce pain without alleviating the symptoms or lessening the obstruction. The only sure and prompt relief is a surgical one. The methods of procedure advised are, the use of variously constructed forceps, curettes, snares, the galvano-cautery and the finger nail. The galvano cautery is difficult to use in children, dangerous when anæsthetics are administered, and slow in its results, besides it is the most liable of all methods to excite ear inflammation. Snares are difficult to manipulate in the naso-pharynx, and unless the growths are large and pedunculated, a failure to engage them in the loop is probable. The method therefore lies between forceps, curettes, and finger nail. If the growths are abundant, soft and friable, the finger nail can scrape them out quickly and without danger. If they contain considerable fibrous tissue, forceps or curette are required. I have tried the different shaped forceps, but have now discarded them in young children for the improved Gottstein curette, which, if properly used is free of danger to surrounding parts, and the manipulation is quickly accomplished. The question of anæsthesia depends upon the age and tractability of the child. If chloroform is administered the hanging head position must be obtained, lest the

free flow of blood that follows may produce asphyxia. The amount of blood lost is usually not great, while quite free for a few seconds, it quickiy stops spontaneously.

In children twelve to fourteen years of age, the post-nasal forceps will often be required as an adjunct to the curette, and if the growth is firm to the finger, the forceps are often alone satisfactory. The Gradle instrument grasps a large piece at one bite and I have found them valuable. In the after treatment nothing is required beyond quiet for a few hours, and keeping the parts free of infection by antiseptic washes. No operation can be considered a success that does not remove all the offending tissue. In my earlier work I attempted to remove them without an anæsthetic, and with forceps; rarely was I able to induce a child to allow the introduction of cutting forceps more than once or twice, but little relief was attained, and I was inclined to believe possibly there was some return. The results of the operation are as satisfactory as any in surgery. The improvement in general health is often remarkable. Jakin reports a case which in two years, a boy increased in weight from 105 to 140 pounds and in height from 5' 3" to 5' 10". Often without internal treatment in a few months the ruddy complexion and increased general vigor is noticeable to all. The family express satisfaction for the relief the operation gives to recurring earaches and ear discharges, and the change in the character of breathing. While we find these growths in children the remnants alone are noticeable in the adult, yet the roughened surface left in the naso-pharynx and the bands of adhesions to the eustachian tubes produce synachia that interferes with its function, and gives rise to permanent ear trouble, and chronic post-nasal discharges that resist all treatment.

I have given a reveiw of the subject to excite discussion and to attract the attention of the society to an often neglected region. I can briefly summarize what I wish to emphasize as follows:

1st. The majority of cases of chronic nasal obstruction in children are due to the presence of adenoids in the naso-pharynx.

2nd. Mouth breathing, snoring, wakefulness, defective mental developement, bad teeth, deformed chests and deafness result from this obstruction.

3rd. The recurring earaches and pus discharges from the ear persistently resisting treatment directed to the ear, are the result of the presence of adenoids and in a majority prompt relief follows surgical removal of the growths.

4th. Many of the ear diseases of adults, and so-called post-nasal catarrhs are the result of adenoids that had not been recognized or treated in early life.

5th. That while adenoids will apparently disappear, as adolescence is attained, they never entirely atrophy. but leave fibrous stumps and adhesion to the eustachian tubes.

6th. Operation for their removal should be undertaken under an anæsthetic and thorough removal accomplished.

7th.—The operation is reasonably safe and besides giving decided relief to the local symptoms in the throat and ear often show wonderful improvement in the general physical condition.

PRELIMINARY REPORT ON THE DIAGNOSTIC VALUE OF PEPTONURIA AND INDICANURIA.*

JOHN H. MUSSER, M. D., AND F. SAVARY PEARCE, M. D., PHILADELPHIA, PA.

The following observations have been made from time to time during the past six months by the writers in order to determine the diagnostic value of the presence of the above-mentioned constituents of urine in disease, and to observe the practicability in daily practice of the methods employed to detect their presence. It is our purpose to continue on a more extended scale the observations here begun.

The specimens of urine studied were taken mostly from the medical wards of the Presbyterian Hospital. Through the kindness of Dr. Abbott, the testing was in the main done in the Hygiene Laboratory of the University of Pennsylvania. Our

* Read before the Philadelphia County Medical Society, June 13, 1894.

appreciation of the aid of the resident physicians, Drs. Arnold, Swan, and Johnson, is hereby acknowledged.

1. TESTS. — Von Jaksch† gives two methods for testing for peptone in the urine. The first, that of Hoffmeyer, is far too complicated and is not, therefore, detailed. The second, the "Devoto method," is given as the best, and is the one here used. The principle lies in the exclusion as far as possible of all other albumins. It is as follows: Take 200 to 300 c.c. of urine, to which add pure crystals of ammonium sulphate in proportion of 80 grammes of the sulphate to 100 c.c. of urine. This solution is placed in a beaker in a boiling-water bath for one-half an hour, when the greater part of the salt should be dissolved. It is then steamed in Budenberg's steam sterilizer for another half hour, the vapor being kept at 100° C. By this procedure, all proteids (serum albumin, globulin, hæmoglobulin, deutero-albumose, peptone, nucleo-albumin—*i. e.*, mucin) are precipitated; but the serum albumin and globulin and nucleo-albumin are thus the only *thoroughly* coagulated bodies, the hæmoglobulin being only *partly* coagulated.

After this last heating to 100° C. filter at once. The filtrate should be straw-colored and free from albumin, as indicated by boiling or the potassium ferrocyanide†† tests. A *slight* cloudiness appearing with the ferrocyanide test does not necessarily imply the presence of albumin. A *decided* turbidity or precipitate would be due to a proto-albumose, or, more probably, hetero-albumose. Should the hot filtrate be cloudy or give the proteid reactions, the investigation has miscarried and must be repeated from the beginning. The residue is washed first with *hot*, then with cold water. The resulting filtrates show a more or less decided brownish tint. These are collected, and to one portion of the fluid acetic acid and potassium ferro-cyanide solution are added to test for albumin. Should no result be obtained the biuret test is performed with a portion to which caustic soda or other alkali has been applied in excess. Any albumin shown to be present is *certainly* peptone.

The filtrate from the *hot* washings may exhibit it, but it often happens that the peptone *first becomes recognizable with the biuret test* in the filtrate derived from the *cold* washings.

Several specimens, both of the hot and cold washings, may be tested until a positive result is obtained.

The test for peptone is, therefore, at best very delicate and requires much time to work out. The biuret reaction is that by which the color test (for such it is) for the peptone is obtained, as inferred from the above. It is as follows. Urine: Add caustic potash, caustic soda, or ammonium hydrate in excess; then add, drop by drop, solution (10 per cent.) of copper sulphate. If *albumin* be present the resulting peroxide of copper (a green precipitate) is dissolved, and the fluid assumes a *reddish-violet* color.

Peptone strikes red, not violet, in the fluid. As this reaction is probably not familiar to many, the color produced is here exhibited (and in a less intense degree than it is usually found in peptonuria experimentation) by adding albumose, containing peptone, to the test.‖

The test for indican is much more simple, and, as given by Strümpel,§ is as follows: "We mix equal volumes of urine and officinal hydro-chloric acid (P. G.), and then add, drop by drop, a concentrated solution of chloride of lime, shaking it after each drop is added. If the urine contains *much* indican, a decided indigo-blue color appears." To this may be added, that the test can be brought out more clearly, chloroform, then agitating. After standing, it will be found the chloroform at the bottom of the tube will be colored violet or bluish.

2. ORIGIN OF PEPTONE.—In health peptone is produced in the blood by the act of digestion. We know that the proteids ingested are transformed into peptones in the stomach and intestines. The peptone is reconverted into proteids in the circulation. Peptonization is, therefore, the *sine qua non* for absorption of proteids. In health the peptone is immediately transformed on entering the blood, hence the reason for the statement of physiologists that "peptone is not found normally in the blood of urine."

The occurrence of peptones in the blood

† Clinical Diagnosis, p. 255.

†† This test is as follows: Urine if filtered and then acidulated with acetic acid. Then add a few drops of a 10 per cent. solution of potassium ferrocyanide. If the urine becomes turbid it shows presence of albumin.

‖ Showed test-tube with reaction.

§ A Text-book of Medicine, p. 408.

or urine in disease would show over-production or a lessened power of the system to assimilate it.

G. Bjorkman's‡ excellent paper throws out some suggestions as to the rationale of peptonuria. He says: "If we regard the chemotactic influence upon absorbed peptones as the reason for such increase in the number of white corpuscles during digestion, many obscure mysteries in the physiological phenomena of absorption will be cleared up."

From the above statement we can infer that an excess of peptone, because the digesture and absorptive power of the white blood-cells are impaired, is carried off as waste in the urine.

The leucocytes multiply for defence in septic and other hæmolytic cases, and some become pus cells, undergo degeneration and furnish increased peptone in the blood, which is then carried off in the urine.

3. ORIGIN OF INDICAN—Indican is found normally in the urine in small amounts. Chemically indican is indoxysulphate of potassium and is colorless, but on adding strong acids or oxidizing agents indigo is set free, producing a blue color.

Its origin in health is hardly established. In disease indican is likely formed from indol, a product formed in the small intestines by the decomposition of albumin and other substances under the influence of bacteria.

4. CLINICAL SIGNIFICANCE OF PEPTONURIA (*i, e., excess of Peptone.*)—As before stated, peptone is not found normally in the blood or urine. It cannot, at least as yet, be detected so frequently or easily in any case as serum-albumin. Peptone is especially found in the urine, according to von Jaksch and other authors, in septic conditions, and under all circumstances where pus is formed in the body—*e. g.*, tubercular cavities, as in the lungs, abscesses, etc.

Von Noorden, however, in his recent work, *Lehrbuch der Pathologie dis Stoffwachsels* (Berlin, 1893), does not think peptone is found in the urine. On the other hand, Robitschek has recently done some experiments for von Jaksch. An abstract of their work appears in *The Practitioner* for June 4. These authors lay stress upon "*The Significanes of Peptonuria.*"

"‡The Physiological Role Played by the Leucocytes," American Medico-Surgical Bulletin for January, 1894.

5. CLINICAL SIGNIFICANCE OF INDICANURIA (*an excesi of Indican*).—Osler* gives, under the head of "Anomalies of the Urinary Secretion," some eighteen substances that may be found in abnormal urines. Some of these are detected in small amounts in health; others being considered always as abnormal, so far as is known to-day. He further states that indican, when in excess in the urine, often denotes "chronic constipation or ileus."

Strümpell† refers to the same thing, as does one of the authors.§ Indican is also said to exist in some cases that are not on a strict milk diet; in wasting diseases, especially if secondary to gastro-intestinal diseases; in peritonitis and empyema, and especially where large quantities of albuminous matter are undergoing rapid decomposition in the intestinal tract. On the contrary, in catarrhal jaundice and in cirrhosis of the liver some clinicians say it is found in very small amounts only. Indican may be thrown down before the urine is voided, but usually, when present, is found after that secretion cools outside the body.

The following observations here tabulated, ‖ as to peptone, indican, albumin, and uric acid in the urine, of the total number of specimens examined are too few in number to base conclusions of a definite character. As to peptonuria and indicanuria, they support in the main the foregoing statements.

We were engaged at the time in studying the urine of cases of typhoid fever. We take this opportunity of presenting the results of the examination for peptone and indican in this disease. Thus in twenty-two experiments in twelve cases of typhoid fever, fair reactions for peptone were obtained in three cases only, while the indican test detected that substance in excess in sixteen out of the twenty-two tests.

In one of the three cases there was a large number of boils, which accounted for the peptonuria. In the other two no foci of suppuration could be found. Such focus was probably present.

CONCLUSIONS: 1. It can be said that peptonuria does not occur in typhoid fever

*The Principles and Practice of Medicine, pp. 772 to 777.

†A Text-book of Medicine, p 408.

‡Medical Diagnosis, p 331.

‖Showed detail tables as to peptone, indican, albumin and uric acid findings in—I. Typhoid-fever cases (12). II. Miscellaneous diseases (33.) III. Known septic cases (12).

in the natural course of the disease.

2. Its presence would point to some area of suppuration.

3. Indicanuria is common to typhoid fever, and indicates the continuance of an intestinal putrefaction. May it not be possible in cases of typhoid fever, with a fibrile course continuing after the specific symptoms have subsided, to determine by this test whether the said fever is due to the persistence of intestinal lesions or to a remote process? and the absence of indicanuria, therefore, point to the removal of any intestinal complication?

The number of cases *other* than typhoid fever examined were forty-five. Many specimens were repeatedly examined as checks, making in all seventy-two tests, not including the typhoid cases.

We shall not burden you with the reading of the long tables here shown, but simply summarize the disease and findings under each head.

1. Cases With Absence of Peptone in the Urine.—There were twenty-one cases out of the forty-five cases examined in which no peptone reaction was found.

Five out of the twelve known septic cases contained no peptone in the urine. In two of these cases, of old well-draining tubercular sinuses, the pyogenic membrane probably acted as a dam, producing for practical purposes local diseases, not affecting the system, as a dyscrasiæ.

The one appendictis case (out of three tested) not having peptonuria was of mild type and recovered without event. There was no generalized morbid process.

Among the remaining cases where no peptone was found in the urine were those of various diseases in the medical wards, mostly doing well, such as corneal ulcer, supposed abscess of groin (proving on operation to be a dermoid cyst,) hysterical hemiplegia, septic stump, (making a rapid recovery,) hysterical hemiplegia, influenza, articular rheumatism (subacute,) bronchitis, hysteria, chlorosis.

Cases in which no Peptone was found in the Urine:

Appendicitis	1	Pneumonia (mild)	1
Bronchitis	1	Neurasthenia	1
Bright's disease (mild).	1	Rheumatism (articular)	1
Chlorosis	1	Rheumatoid arthritis	1
Catarrhal gastritis	1	Sciatica	1
Corneal ulcer	1	Septic stump (rapid recovery)	1
Epilepsy	1	Septic condition of groin (proved to be dermoid cyst at operation)	1
Hysterical hemiplegia.	1	Tubercular bone disease.	2
Hemiplegia (organic).	1		
Hysteria	1		
Influenza	1		
Pleural effusion (slight)	1		
		Total	21

2. Cases with the Presence of Peptonuria.—All the cases in which suppuration was known to be present had peptone in the urine except two. Of the two out of three appendicitis cases that showed peptonuria, one recovered; in the other perforation took place. Operation was done, finding much pus, the patient dying of septic peritonitis.

In all the forty-five cases (excluding the ten septic ones) peptone was found among the miscellaneous diseases (thirty-three) in twenty-four, such as Bright's disease, pneumonia, pyothorax, pulmonary tuberculosis, chronic valvular disease of the heart with extreme anæmia, pleural effusion and in such diseases where there was destruction of the *blood cells*.

Cases in which there was Peptone in the Urine:

Anæmia (extreme)	1	Pneumonia (severe type)	2
Acute general dermatitis	1	Pleural effusion (marked)	1
Appendicitis	2	Pyæmic or septic cases (out of the 12 examined)	10
Bright's (chronic)	1	Typhoid (covered with boils)	1
Chronic valvular heart disease with anæmia.	1	Tuberculosis	3
Gelatinous arthritis knee	1		
		Total.	24

In the case of septicæmia with retained secundines in which there was also marked reaction for peptone there was extreme leucocytosis, the blood estimation revealing the following: white blood-corpuscles equals 49,966 to c.mm.; red-blood corpuscles equals 3,925,000 to c.mm.; hæmoglobin, 43 per cent. This is confirmatory evidence of what takes place in the blood in septic conditions. It may probably, *a priori*, be that leucocytosis is generally found to accompany peptonuria. With this cell disintegration, too, according to Victor Vaughan* and others, the corpuscle nuclei being destroyed furnishes xanthin and uric acid in excess in the urine.

3. Cases in which there was Little or No Indican in the Urine.—Out of the forty-five cases of miscelloneous diseases (thus still excluding the twelve typhoid already classified) formulation of the findings is as follows:

a. In thirteen diseases, including epilepsy, Bright's disease, hemiplegia, pneumonia, tuberculosis, and rheumatoid arthritis, indican was entirely absent or only the faintest blue color was produced which was then assumed as physiological.

*"Nuclein and Nuclein Therapy," Journal of the American Medical Association for June, 1894.

Cases in which there was Little or No Indican in the Urine:

Of the pyæmic cases, 4:	Abscess (buttock)	1
	Infected wound	1
	Tubercular bone disease	2
Miscellaneous, 13:	Amputated stump	1
	Arthritis (rheumatoid)	2
	Arthritis (gelatinous)	1
	Bright's disease	2
	Corneal ulcer	1
	Epilepsy	1
	Hysteria	1
	Pneumonia	1
	Neurasthenia	1
	Tuberculosis, lungs, (incipient)	2
	Total	17

4. CASES IN WHICH INDICAN WAS PRESENT IN VERY APPRECIABLE TO MARKED AMOUNTS IN THE URINE.—We found indican in twenty-five of the forty-five cases examined (excluding again the typhoids.")

In general the diseases included pleural effusion with intestinal catarrah, catarrhal gastritis, nervous dyspepsia, and all three appendicitis cases from a good to marked reaction.

Indican was also found in excess in the case of cancer of the uterus. When thus found in the urine in local cancer, indican may be of value as showing secondary nodules in the intestines, or at least deficient and altered functionation produced by the malignant disease.

Indican was also found in the urine of the case of sapticæmia from retained secundines. Here the close poximity of the focus of pus to the intestinal tract most likely was the cause of the fermentation in the gut.

We were unable to obtain any cases of intestinal obstruction for examination during the time of making these studies.

Cases with Indican present in Excess in the Urine:

Abscess (psoas and lumbar near intestinal tract)	3
Appendicitis	3
Acute dermatitis (bowels torpid)	1
Anæmia (extreme) with constipation	1
Articular rheumatism	1
Chronic valvular heart disease with subacute intestinal catarrh	1
Chlorosis (with constipation)	1
Cancer, uterus	1
Catarrhal gastritis	1
Dermoid cyst	1
Hysterical hemiplegia	1
Hysteria, anæmia, and constipation	1
Hemiplegia (organic) with constipation	1
Influenza	1
Pneumonia	2
Pleural effusion	1
Retained secundines with intestinal torpor	1
Sciatica	1
Tuberculosis	1
Typhoid (covered with boils and hence included in pyæmic cases)	1
Total	25

5. ASSOCIATION OF PEPTONURIA WITH INDICANURIA.—The two were found together in a large number of the cases in which either compound was detected.

Peptone occurred, as stated, in the large majority of septic cases.*

Where there was extreme emaciation with intestinal symptoms as an especially prominent etiological factor, indican was found in the urine in excess.

The relation of indicanuria with pepionuria depends on two things mainly:

a. If the septic or other irritating condition is localized in the gastro-intestinal tract marked indicanuria is detected.

b. If the general system becomes involved in the albuminous compounds, destruction, then peptone is formed in excess in the blood and hence thrown down in the urine along with the excess of indican.

Petone depends on changes really in the system.

Indican depends on fermentations really outside of the body (*in the gut*).

Thus depending on *general* cell destruction and elimination of the suboxidized proteid product, or on *local* intestinal fermentation being prominent, will peptone or indican be found in excess in the urine.

If the *local* and systemic conditions exist together as described, then we may expect to find both products in the urine. Then, too, the indication is of more serious disease.

6. ASSOCIATION OF ALBUMIN WITH PEPTONURIA AND INDICANURIA.—In the specimens of urine in which albumin was found, it was due to a definite cause, as in Bright's disease or pyuria, hence in these experiments albuminuria bore no relation to peptonuria or indicanuria.

7. Likewise there is negative result in these few experiments in comparing the frequency of excess of uric acid with excess of peptone or excess of indican in the urine. The long-accepted theory of direct relation between uric acid and urea is now overthrown.

It would be, therefore, of value to test more extendedly for the relation of uric acid (know now to be produced from cell nuclei destruction) to peptonuria and leucocytosis. A great field is open here.

Finally, the trouble and time taken to this work thus far proves it not to be very practical.

But if one *had* the opportunity and time for such investigation of cases important indications would undoubtedly be derived.

*The liability to inaccuracies in the work *creeping in* must be considered in excluding peptonuria from two septic cases.

THE MEDICAL AND SURGICAL REPORTER

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SATURDAY, JULY 21, 1894.

EDITORIAL.

DISCUSSION ON HERNIA AT THE LATE MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

An elaborate programme had been prepared for the Surgical Section of the American Medical Association at the San Francisco meeting, in which the subject of hernia was designed to take a prominent position.

The plan of providing a number of formal papers upon a specified subject and the selection of those who are to be prepared to lead the discussion, will commend itself to all. It must be conceded, however, that in this discussion on hernia the results have been disappointing.

Many of the papers were read by title only; and most of the contributions actually presented showed signs of the hasty performance of a perfunctory duty, without such care and preparation as the dignity of the occasion demanded. Almost nothing of statistical value was produced.

The most creditable and practical essay presented, was that of Dr. Joseph Ransohoff, of Cincinnati, on the "Treatment of Strangulated Hernia." This paper, an abstract of which appears elsewhere in the REPORTER, will amply repay careful study.

The writer advises early operation in all cases of strangulation, and shows that in a large number of mortal cases, death was induced by causes preventable through early operation. This timely contribution is a painful reminder that despite the vaunting of enthusiasts on abdominal surgery, it remains an open question whether or not of late years any substantial progress has been made in the surgery of the intestine. For instance; McCosh is represented as placing the mortality of artificial anus for gangrene of the bowel at 50 per cent; Renno Schmidt gives a mortality of 85 per cent. for resection of the intestine; and of 168 cases of gangrenous intestine, Mikulicz reports 109 deaths.

Dr. Ransohoff believes that an operation for strangulation is not in itself dangerous to life. The diminished mortality of more recent years, he thinks, is due largely to an early interference, and the mortality may be further reduced by avoid-

ing such causes of death as heart failure and pneumonia, by the substitution of local for general anæsthesia. He says:

"With my present knowledge, the deaths from heart failure and pneumonia might have been averted by substituting cocaine for general anæsthesia.* * * * In a case recently seen, I made the relief-operation, removing a mass of the omentum as large as a walnut, and returned the intestine without inflicting enough suffering to elicit a moan."

This point is not sufficiently emphasized. Manley, in his recent work on hernia, recommends cocainization as a local anæsthetic in operation for all cases of strangulated hernia, claiming thereby a reduction of operative mortality to nil, unless the bowel is actually gangrenous at the time of intervention. Indeed Manley claims something more than pain-killing power for cocaine in operations for strangulated hernia, for he alleges that it prevents vomiting, acts as a local hæmostatic, and makes the surgeon so master of the situation that he needs no assistance other than that the patient himself can provide.

If the local use of cocaine in strangulated hernia is what Manley claims for it, its general adoption in this class of cases will constitute a very substantial advance in the operative treatment of this condition.

It is unfortunate that even this phase of the subject did not receive more attention at the California meeting; for if local anæsthesia provides safeguards to life, and is without immediate or ultimate peril, it should be made known to the profession, and be at once adopted in all suitable cases in which hernia becomes complicated and menaces life.

ABSTRACTS.

NATURAL SANITATION.

The natural conditions which should be incident to the life of human beings, conducive to long and healthful life are:

a. Breeding from parents free from physical or mental taint.

b. Feeding the infant upon the mother's milk.

c. Higher regard for the physical than mental training of youth.

d. Pure air, pure water, pure food.

f. Wearing loose clothing.

g. Natural sleep and plenty of it.

h. Natural labor—physical or mental unforced.

i. Dwelling house free from filth, having free access of sunlight and air.

j. Use of earth closets.

k. Prompt elimination of effete matter from the body, by the lungs, skin, bowels and kidneys.

l. Frequent washing of the body.

m. Frequent change of all articles of clothing.

n. Burning of the dead.

o. Exercise of passions within natural prompting.

p. Constant occupation, physical and mental.

INSANITATION.

The unnatural conditions incident to human life which are conducive to ill-health, disease and early death are:

a. Habits peculiar to the higher modern civilization in its influence upon both body and mind. Cultivation of luxurious living rather than following natural instincts.

b. Inheritances by breeding from parents who are physically and mentally tainted with disease, such as syphillis, consumption, rheumatism, alcoholism. Low physical development, malformations. Insanity or mental bias. Marriage between those of near family relationship.

c. Impure air. Bad ventilation, in sleeping, work, school or lecture room. Theatres, halls, churches, sleeping cars, railway, day or night ordinary passenger cars. Palace cars. Depot waiting rooms. Hotel sleeping or dining rooms. In water closets, sewers and privies.

Impure air in these places arises from expired air from the lungs and the effluvium from the skin, loaded as it always is with effete matter.

Air becomes impure from the floating dust arising from dried filth, which includes the spittle and phlegm of diseased human beings and animals. The eliminated excrementitious and effete matter from the animal or human body. From decayed rotting or fermenting waste of a vegetable or animal nature. These influences are incident to every place inhabitated by animals of high or low degree, including man, and the palace as well as the hovel may be tainted.

d. Impure water which becomes so by contact with the following influences:

Human and animal excreta, surface deposit, or in privies, cesspools, and sewers.

Kitchen refuse, bath tubs, laundries, slop water, garbage, decayed vegetable matter on surface of ground or in water. Barnyard, stock yards, pig-pens, cow and horse stables, graveyards.

Vegetable acids from soaked leaves, branches and roots of trees and bushes on water shed.

Artificial and natural manures, washed from agricultural fields on water shed.

Swamp scum and fungus growths, swamps, stagnant pools, marshy bottoms.

Low stage of water in tributaries on the water shed.

Turbid water from canals and stagnant pools.

Dead animals, fish and spawn in water, or on the surface of the water shed.

Street and road drainage, public markets, slaughterhouses, putrescent impurity from decaying animal tissue, blood and excreta.

Tanneries.—Refuse, decayed animal tissue and chemicals from the process. Sulphuric and tannic acid, bark, liquors, etc.

Creameries.—Fermenting refuse from process of cheese and butter-making.

Malt liquors, breweries, alcoholic liquor distilleries, refuse fermenting vegetable matter for them.

Paper mills, chemical pollution from lime, chloride of lime and alum, caustic alkali, etc.

Pollution by chemicals, grease oils, spent liquors, etc., wasted from dye works, chemical works, woolen works, cotton works, soap works, gas works and wool washers.

Sulphate of iron and oil of vitriol from iron and wire mills.

Drainage from coal mines, coal yards, railroads and locomotive houses.

Oil wells, natural gas wells, iron mines, bog iron ore, lead mines, lead pipes, sulphuric acid, tannic acid, lime, sulphate of lime, carbonate of lime, magnesia, salt and chlorine.

To the above may be added under the general head of sewerage, anything and everything which pertains to, and is incident to human and animal life, manufactories, trades, professions and sciences, and denominated refuse or waste.

It may be stated as a general proposition, that all waters taken from a water shed which is inhabited by human beings under the most modern state of civilization, are more or less contaminated by one or more of the various causes which have been stated.

It may also be stated as a general proposition, that all waters in a natural state, whether proceeding from the clouds as rain, or coming from the earth, contain impurities which are injurious, subject to such exceptions as may be peculiar to certain conditions and environments.

e. Communicable Diseases:

1. Insanity; syphilis; rheumatism; consumption; physical debility; alcoholism; mental bias in favor of immorality; various manias not amounting to insanity; physical deformity and nervousness.	By bad breeding, through inheritance.
2. Small-pox, scarlet fever, measles, whooping cough, skin diseases, diphtheria, puerperal fever, yellow fever. Vegetable and animal parasites and vermin.	By contract with the diseased, their clothing or surroundings. By dust arising from diseased scurf and dried effete matter from the body.
3. Typhus fever, typhoid fever, cholera, dysentery, inflammation of stomach and bowels.	By contact with filth, by water, milk or other liquids and food containing the germs of the disease.

f. Mental and nervous diseases of various types. Caused by grief, worry, anxiety, disappointment, shock from sudden joy or sorrow. Wounds: chronic diseases, inherited or induced by alcohol, morphine, opium, tobacco, coffee or tea. Diseases peculiar to the female sex. Fanaticisms, religious excitements. Physical vices or worry incident to commercial and professional life.

Of the foregoing influences which cause conditions which are at war with sanitation the most serious may be mentioned as follows:

Impure air, water and food. Filth, uncleanliness. Bad breeding. Consumption. Diphtheria. Fever of various kinds mentioned. Improper disposal of excreta, of diseased tainted clothing and furniture, and insanitary disposal of the dead by burying in the ground. Careless contact of persons one with the other, who are under the influence of disease, by association, or in any other manner. Alcohol and narcotic poisons.

Such are the conditions incident to insanitation the world over.—*W. H. Barnes, Esq., in Dietetic and Hygienic Gazette.*

SOCIETY REPORTS.

THE LOUISVILLE CLINICAL SOCIETY.

March 13, 1894.

[STENOGRAPHICALLY REPORTED BY C. C. MAPES.]

UTERINE FIBROID.

DR. W. H. WATHEN: This tumor was removed from a lady thirty-four years old, from Bowling Green, on last Thursday. She had suffered from its effects for several years, and for two years had profuse menorrhagia and metrorrhagia. She had been treated by some of the best physicians of the State without improvement, and had finally become so anæmic and feeble that her physician did not think it safe to allow the case to go longer without surgical interference, and referred her to me. Her pulse was 110, and she weighed about ninety pounds. An examination of the urine showed that the kidneys were performing their functions properly, and with the exception of extreme anæmia and a rapid and feeble pulse she was in a good condition for operation.

This tumor weighs about ten pounds and is nearly the shape of a generally enlarged uterus. The tumor had not formed adhesions, but was intraligamentous, having unfolded the broad ligaments out to their attachment to the pelvis, so that it could not be brought through the abdominal wound because held down tightly and wedged in the pelvis. Ligation was begun at the top on one side, then on the other, dividing off the broad ligaments, when the tumor could gradually be elevated. I ligated as close to the pelvis as possible and clamped close to the tumor with hemostatic forceps. The peritoneum was stripped down in front and behind, and by this means a pedicle was formed. I intended to ligate the uterine arteries and extirpate the entire uterus, or leave the cervix covered with peritoneum, but when the neck was well formed I saw it could be very easily brought into the wound and treated extra-peritoneally, and, as the woman was in feeble health, any delay might have proven serious. So I used the *neude* and treated the pedicle by the extra-peritoneal method. The peritoneum was stitched closely around the pedicle below the wire with catgut, the incised peritoneum closed for the entire length with catgut, and the abdominal incision united by silk-worm gut sutures introduced down to the peritoneal layer. There was no shock, and the anæsthetist reported the patient's pulse better when the operation was completed than when she went on the operating table. She had some pain during the afternoon, and the nurse gave two hypodermic injections of $\frac{1}{8}$ grain morphine. Aside from that she has had no trouble, has been apparently in a normal condition, pulse and temperature good, passed gas

freely within twenty-four hours after operation, bowels move daily and she is convalescing nicely. I will not change the dressing for two days.

I prefer the intra-peritoneal treatment of the stump or total extirpation where there are no conditions that indicate that the extra-peritoneal method would be safer. The extra-peritoneal method is the simpler method and quicker in many cases. In two cases recently operated upon, I used the intra-peritoneal method, ligating the uterine arteries and leaving the stump.

I am sure there will never be a time when hysterectomists will adopt any one method of treating the pedicle to the exclusion of all others.

DISCUSSION.

DR. W. O. ROBERTS: In applying the *neude* was it necessary to separate the bladder or rectum from the tumor?

DR. W. H. WATHEN: An examination before operation showed the bladder to be low, and in operating it was not in the way. The tumor was not adherent to the rectum.

DR. A. M. CARTLEDGE (Visiting): I am like Dr. Wathen. I think the supra-vaginal method the best in treating such cases. An operation of this character ought to be done very quickly. I would like to ask the reporter how much time was consumed in applying the *neude* and removing the tumor.

DR. W. H. WATHEN: The time required for that part of the work was about thirty minutes.

DR. A. M. CARTLEGE: Supra-vaginal operations like this where there are not a great many adhesions ought to be completed in forty to forty-five minutes. I have certainly done several such operations in that length of time, and this seems to me to be an ideal tumor for that procedure. In two or three cases I have had the trouble indicated by Dr. Wathen, an unfolding or infolding of the broad ligaments, and I remember one case where I actually removed such a tumor without opening the general peritoneal cavity. I always follow up and ligate first the ovarian then the uterine arteries. I think the best plan is to ligate these arteries direct and not include the broad ligament as is usually done. That is instead of transfixing the broad ligament and applying a ligature to the artery including the broad ligament, you ligate each separately, cutting down to the cervix itself which is a matter of but a few minutes. By this means hemorrhage is absolutely controlled; in fact, where this method was employed I have never seen any hemorrhage, but where both the broad ligament and artery are included in the same ligature owing to the contraction of the structures, the ligature is liable to become loosened and serious hemorrhage might occur. This method of ligation is applicable to any of the three methods of operating, total extirpation, supra-vaginal and extra-peritoneal.

I remember the first time I did this operation the time consumed was one hour and fifteen minutes, but that was in a very complicated case with extensive adhesions. I am sure in most cases it can be done in forty-five minutes.

DR. W. H. WATHEN: This was not on easy tumor to remove, for the reason that there were practically no broad ligaments to work upon. Only a small portion of tissue could be included in each ligature and the ligaments had to be cut so near the tumor that there was difficulty in controlling hemorrhage from the uterine side. Where there is unfolding of the broad ligaments, this difficulty is encountered. With a tumor that can be brought well up out of the pelvis, where there is no unfolding of the broad ligaments, the operation is very simple. In some instances it is only necessary to apply two ligatures to include the arteries upon each side; the first for the ovarian artery, the second for the uterine artery, but in the case reported, before getting down to the pedicle, it was necessary to ligate section after section. Six ligatures were used upon each side of the tumor, which made the operation difficult and tedious.

Dr. L. S. McMurtry read a paper entitled

OVARIAN TUMORS.

(See page 42 last week's REPORTER).

DISCUSSION.

DR. W. O. ROBERTS: I agree with what Dr. McMurtry has said with reference to the diagnosis of abdominal tumors. It is impossible in many cases to make the

diagnosis, as he states, without an exploratory incision. I do not suppose there is an operator living who upon opening the abdomen has not found conditions to deal with that he had not expected. As the essayist has said so simple a thing as ovarian tumor has often been mistaken for a great number of troubles. At the last meeting of this Society I reported a case of very large multilocular ovarian tumor that had been mistaken by a number of competent physicians for extra-uterine pregnancy; one went so far as to say that he believed he had felt the the movements the child. It turned out to be simple multilocular cyst. On one occasion I remember to have opened the abdomen for ovarian tumor and found as Dr. McMurtry states he did on one occasion, a large cyst of the kidney. I have operated for removal of the spleen, and found the trouble to be a tumor of the kidney. As he states also I do not think it makes much difference as to the length of the incision that we make in the removal of these tumors. My rule is to always make the incision sufficiently large to give an abundance of room.

In reference to uterine myoma: I can recall quite a number of women who had myoma of considerable size, extending up to the umbilicus, and half or nearly all of them have disappeared at the menopause. I examined a lady a short time ago who had a tumor of this kind extending above the pubes—she was also seen by Dr. Marion Sims in 1875, at the time the *American Medical Association* met in this city, and an operation was discussed at that time. Dr. Sims strongly advised against any operative procedure. In the examination a short time ago the tumor was found to have almost entirely disappeared. There is another lady in this city, a nurse who had a myoma of the uterus of considerable size extending almost up to the umbilicus. A number of the gentlemen present know the woman. Since the menopause it has almost entirely disappeared.

As regards the operation of removal of the appendages in the treatment of uterine myoma, I suppose all of us can recall numbers of cases where we have done the operation with marked success. I do not know of a single instance in which I have removed the appendages where the tumor has failed to shrink away. I do not remember to have lost a patient from an operation for this condition. I think where the tumor has not attained a very great size, and where it is not producing any trouble from pressure that the simpler operation of removal of the appendages ought to be tried before total extirpation is done.

In the operation of hysterectomy, I agree with what Dr. McMurtry has said that the operation mentioned by him, the one employed in the case he reported, is decidedly the simplest and safest of any method that I have seen. I have never done the operation of amputation through the cervix and leaving the stump inside. I have always done the operation mentioned by Dr. McMurtry—extra-peritoneal treatment of the stump—and so far prefer it to any other.

Dr. W. H. WATHEN: There can be no question about the propriety of removing ovarian tumors; it matters not how small they may be. It is fortunate that women who suffer with these tumors now solicit professional advice early and have the tumors removed before complications have arisen that would endanger life. Ovariotomy, where the kidneys are healthy, and the system is in good condition, unless some unusual complication should arise, ought to be almost universally successful in the practice of any one who has experience with the best technique in abdominal surgery. For more than two years I have met with so little trouble in ovarian tumors, that they give me less annoyance than any other form of tumor in the abdominal or pelvic cavities. The diagnosis of ovarian tumors, especially when small, cannot always be made accurately, but with the exception of fibroid tumors of the uterus they are probably more easily diagnosed than any other form of abdominal tumor. I have several times made a diagnosis of ovarian tumor but when the abdomen was opened found a par-ovarian cyst. Six months ago I removed a par-ovarian cyst which weighed fifty pounds. In this case I had made a diagnosis of ovarian tumor. Three months since I removed a twenty pound par-ovarian cyst from a girl eighteen years of age which I had diagnosed ovarian, and in several cases within the last two years I have found par-ovarian cysts where I have diagnosed ovarian tumors. On two or three occasions I have found large intra-ligamentous cysts, where I had diag-

nosed ovarian tumors. It is usually impossible to make a differential diagnosis between these cysts and the ordinary ovarian tumors until the abdomen is opened, nor is it important for they should all be removed.

In regard to fibroid tumors, I do not think we should be governed as much by the size of the tumor as by the symptoms. A tumor of considerable size may cause no symptoms that seriously interfere with the woman's health or happiness. A small fibroid may cause symptoms that demand removal of the tumor, and this should be our guide mainly in the extirpation of these tumors. I agree that fibroid tumors are frequently removed where there is no necessity for it; other operators may refuse to remove a fibroid when operation for its removal is imperatively demanded. I do not think anyone ought to undertake to do an hysterectomy who has not seen this work done and is thoroughly familiar with its technique, because while one hysterectomy may be a simple operation, the next may be one of the most difficult operations in abdominal surgery. To do this work a man should be a skillful operator, and should be prepared to treat any emergency or condition that may arise.

I have not had much experience in the removal of ovaries and tubes in the treatment of fibroid tumors. I remember one case upon which I so operated four years ago. The woman was suffering so much that something had to be done. The tubes were seven inches in length and large; the ovaries were four times the normal size but not cystic. She made an uninterrupted recovery, not only from the operation, but all symptoms were relieved. I saw the woman less than two months ago, and there had been no return of the symptoms; the tumor has decreased very much in size. I know of many cases where the tumors have decreased in size without treatment, and all symptoms have disappeared. I remember one case, the patient being the mother-in-law of a prominent lawyer of this city, who consulted me five years ago, and I recommended operation. She declined and went to Chicago and was treated by Dr. Martin, and while there was no immediate improvement, on her return to Louisville all the symptoms gradually disappeared and she is to-day apparently in perfect health, with the tumor very much decreased in size. So I repeat that it is not so much the size of the tumor that should govern us in our operations but the symptoms. As I remarked in presenting this specimen, concerning the three methods of treating the pedicle—the extra-peritoneal, intra-peritoneal and total extirpation. It depends upon the conditions that you have to deal with at the time, the fondness of the operator for one method over another and his expertness in doing the operation.

Dr. Cartledge spoke of ligating the arteries separately; that is a very good method, but I believe the operation can be done more rapidly and better by not doing so unless we do total extirpation. In the intra-pelvic but extra-peritoneal treatment of the pedicle the ligation of the uterine artery by including both layers of the broad ligament in the ligature will often bring peritoneal surface against peritoneal surface, thereby removing the necessity of suturing the flaps over the cervix. The fewer ligatures used in these cases the better.

Dr. J. W. Irwin: What percent of fibroid tumors are found maligant?

Dr. W. H. Wathen: It has not been proven that a fibroma has degenerated into a carcinoma, but its presence may constitute a *locus minoris resistentiæ* determining a local diathesis. With fibromata there is often a chronic glandular endometritis, which causes proliferation of the glands, at first typical, passing into the atypical or malignant. The round cell sarcoma may develop in the frame work of a fibroma and destroy the muscular fibres; and there may be a sarcomatous fibro-cyst—cancer may invade the uterus by the side of a fibroma; and cancer of the cervix is often associated with fibroma of the body.

Dr. A. M. Cartledge: I can hardly agree with Dr. McMurtry as to the incision: I believe the smaller the incision we make and yet allow thorough work the better. This applies to ovarian cysts as well as other abdominal tumors; it is possible to remove a very large cyst having several compartments, through a small incision. Of course we may go to the extreme in either direction, and I believe the incision should be governed entirely by the condition with which we have to deal, making it as small as consistent with thorough work. I do not mean to underestimate the importance of an incision suf-

ficiently large through which to work with ease, and where there are extensive adhesions the incision should be large enough to admit of thorough and perfect surgical work.

Dr. Wathen's point in regard to ligation is well taken except for one fact. We must remember that the greatest danger from hysterectomy is hemorrhage. While it may be true that the fewest possible number of ligatures should be inserted in the abdominal cavity, yet I believe his method of ligation is one of the bad points about his operation. In the enucleation of a fibroid tumor of the uterus we have the danger of hemorrhage from the ovarian and uterine arteries, which if it occurs may be very difficult to control. In forming the pedicle of such a tumor it is largely composed of muscular structures and great care should be taken in the ligation. I take the position that the arteries in this situation should be ligated separately, because if included with the pedicle or broad ligament, the liability of the ligature slipping owing to contraction of the muscular structures after the anæsthetic is eliminated, is very great. In separate ligation this danger is reduced to a minimum; when the ligature is applied direct to the uterine artery for instance it cannot slip, and therefore becomes perfectly safe.

DR. W. H. WATHEN: Dr. Cartledge is mistaken about the danger of the ligature slipping when passed through the peritoneal fold, because it is impossible for it to slip if applied in the manner I have suggested. The only danger is in failing to include the uterine artery in the ligature. If care is taken to include the artery, and the ligature is sufficiently strong it may easily be drawn tight enough to control hemorrhage. Dr. Cartledge magnifies the danger of hemorrhage after hysterectomy. Statistics show that there are very few recorded cases of fatal hemorrhage occurring after these operations, where the uterine arteries have been tied by any of the prevailing methods. Some fatal cases are reported, but most of them occurred years ago, and the fault was in the ligation of the pedicle itself composed of the neck of the womb, a method which no one would practice now because it is unreliable in controlling hemorrhage, and predisposes to sepsis by causing sloughing of the neck.

DR. A. M. CARTLEDGE: In the ligation of any blood vessel, it is important that the ligature be applied directly to the vessel; the more tissue included the greater the liability to hemorrhage.

DR. L. S. MCMURTRY: I am greatly pleased that the subject has received such marked attention and discussion by the Fellows of the Society. I have seen several cases of fibroma where hysterectomy was done several years after the appendages had been removed. At the hysterectomy the stumps where the appendages were removed showed that the operation had been thoroughly done, but the tumor had continued to grow. As a rule removal of the appendages in the early stage of fibroid growths of the uterus, is a very satisfactory operation. The appendages are nearly always found to be diseased. As stated in my opening remarks, and as has been demonstrated in the discussion, the great interest in the subject centers around the dangers of the operations, not from shock but from hemorrhage. I believe an investigation of the subject would show that a great many of the deaths following hysterectomy reported as resulting from shock, are really due to hemorrhage. If the abdomen were opened it would be discovered that bleeding had taken place from the stump treated intra-peritoneally. The stump of a fibroid tumor is composed of contractile muscular tissues, and is a very dangerous stump to leave in the pelvis. I have seen a number of cases in the practice of others where there has been an intra-peritoneal stump which was followed by serious trouble weeks afterward from abscess of the stump. After you tie the uterine arteries you cut off the greater part of the blood supply to the stump, and it is very liable to undergo necrotic changes.

One of the gentleman present has called my attention to the fact that in speaking of ovarian tumors I said nothing about tapping. The dangers of this procedure are so well known it is scarcely necessary to say anything about it. Invariably after tapping there will be more or less inflammation and adhesions.

The Advantages of Pental.

Phillips (Zeutsch. fur Kinder.), judging from an experience of 1,000 narcoses in the Kaiser Friedrick Hospital, Berlin, makes the following statements concerning the advantages of pental over chloroform.

(1) More rapid narcosis.
(2) Absence of or shorter period of excitement.
(3) Quick recovery.
(4) Absence of after effects such as are common with chloroform.
(5) Cyanosis rarely appears, and is then due to tonic contraction of diaphragm and glottis.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF ELLISTON J. MORRIS, M. D., AND SAMUEL M. WILSON, M. D.

THE AMERICAN JOURNAL OF OBSTETRICS

For June contains a paper by Dr. George H. Rohe on

Hematoma of the Ovary.

The view that these are caused by an excessive hemorrhage into the Graafian follicle after rupture and escape of the ovule, seems to the author not tenable. The reasons given by him for rejecting this theory are that in many instances no rupture of the follicle has taken place. Besides, the corpus luteum frequently contains no blood. He believes that hematoma of the ovary, no matter how small, should be looked on as a pathological formation, having no essential connection with the process of ovulation. The cause he thinks is due to some nutritional change in the ovary or the blood vessels. The author does not look with favor on the conservative proceding of extirpating the hematoma and stitching up the wound in the ovary, but believes that the entire ovary should be removed, as he has always seen in these cases complications that require the removal of the ovary. He reports the case of a woman in the insane hospital in whom the removal of both appendages, one of which contained a hematoma and the other a cyst, resulted in complete restoration to health.

In conclusion he says: A hematoma may rupture and give rise to a pelvic hematocele. In other cases the bleeding may continue and the patient die of hemorrhage. The most serious danger from rupture is peritonitis or sepsis. The diagnosis of ovarian hematocele cannot be definitely made before abdominal section. Even when rupture occurs and a hematocele is formed the diagnosis rests between several conditions, often differentiated with difficulty, even after operation.

The only rational procedure is removal of the affected organ by abdominal section.

Dr. J. H. Carsten contributes a paper on

Cæsarean Section

in which he sums up his conclusions as follows:

1. In certain cases with an antero-posterior diameter of three inches craniotomy is justifiable.

2. With an antero-posterior diameter of less than three inches, Cæsarean section should be performed.

3. In the latter cases sometimes the classical; sometimes the Porro-Cæsarean section should be preferred.

Dr. J. E. Oldham discusses the subject of

Ectopic Gestation,

reporting several cases. The author favors the use of electricity. His manner of using galvanism was with a large clay electrode applied to the abdomen, and an ordinary vaginal electrode, wrapped with absorbent cotton, introduced into the vagina well under the tumor. The abdominal electrode was connected with the positive, and the vaginal electrode with the negative side of the battery.

In the first case reported, the course was so rapid that a positive diagnosis could not be made prior to the time of rupture, and that occuring into the peritoneal cavity, the hemorrhage was fatal. In the second case faradic electricity failed to destroy the vitality of the fetus, after a most thorough trial. In the third case galvanism used as stated did destroy the vitality of the fetus, and this case illustrates the fact the patients may conceive and bear children after the occurrence of ectopic gestation. The fourth case illustrates and bears out the statment of Pozzi that "internal suppuration may occur in the sac long after the contents have become encysted and rendered apparently an inert mass." The fifth case again demonstrates the efficiency of galvanism. In the sixth case galvanism was not effective, but whether on account of the intollerance of the patient to bear a current of sufficient strength, or whether from the advanced state of the pregnancy, the author is unable to say; he is inclined, however, to the former opinion.

Dr. Mary A. Dixon Jones contributes a paper on

The Minute Anatomy of the Fallopian Tubes,

suming up the result of her researches as follows:

1. In the tube-wall are six layers of smooth muscles. The two main layers are the circular and the longitudinal. These interlace, the circular has the broader area and is nearer the calibre; the longitudinal is nearer the peritoneum.

2. The inner surface of the tube-wall is made up of myxomatous or myxo-fibros connective tissue, which in turn is supplied with two muscle layers, a broader longitudinal and a narrow circular, both interlacing

3. The mucosa has folds with many ramifications, serving for the occlusion of the calibre during life. These folds are the result of alternate contractions and extensions of the two muscle-layers of the mucosa, the transverse and the longitudinal, which are visible throughout all the folds and all the ramifications, arranged in bundles close beneath the epithelial layer.

4. Outside of the longitudinal layer of the tube-wall is the layer of blood vessels, mainly, arteries and veins, in an arrangement similar to that known to exist in the walls of the uterus.

5. Beyond the vascular layers are the two narrow layers of smooth muscle fibres, both being oblique, both traceable from the uterine ostium up to the fimbriated extremity of the tube, and they correspond to the two oblique layers of the wall of the uterus. The two ob-

lique layers are bordered outwardly by the peritoneum, and seem to serve mainly for the regulation of the afflux of blood in the subjacent arteries and veins.

6. The circular and longitudinal muscle-layers are antagonistic in their action. If one layer is contracted, the other is relaxed. Again, the two muscle-layers of the tube-wall proper are antagonistic in their action to the muscles of the mucosa. The contraction of the muscles of the tube-wall is accompanied by a corresponding relaxation of the muscles of the mucosa. Within the folds the primary, secondary, and tertiary ramifications are produced by alternate contractions of smaller portions of the muscle-layers of the mucosa.

Dr. J. Foster Scott discusses

The Pathology and Treatment of Periuterine Pelvic Inflammations.

While it is pretty generally accepted now that the vast majority of periuterine pelvic inflamations (aside from those following puerperal septicemia) are caused by peritonitis consequent upon tubal disease. The author thinks that the condition of pelvic cellulitis will still continue to be a recognized pathological factor in cases of infection following upon childbirth, abortion, or the introduction of virulent poisons into wounds of the upper vagina, cervix, or uterus.

In the treatment of this condition the author advises, if the condition originates from a septic endometritis, that the uterus be curetted, washed out, and a gauze drain introduced up to the fundus. In the acute or chronic forms, where suppuration has not occured, the patient should be kept in bed at absolute rest, and have morning and evening hot douches, prolonged for fifteen to twenty minutes. If the bowels or not filled with impacted feces, the author thinks it advisable to keep the patient well under the influence of opiates to quiet peristaltic action. Painting over a large surface of the lower abdomen with iodine should be tried, and the author is in favor of the application of six or eight leeches to the portio vaginalis. Ice-cold applications he regards as better than hot poultices; the latter, in his estimation, favor the growth of septic organisms and hasten suppuration, which might be averted by cold. If there is a gonorrhœal history, the utmost trouble should be taken to prevent its ravages by antiseptics applied to the inner surfaces of the uterus, even if it has spread there. Diet and tonics are needed. Pain is to be met with morphia suppositories and opiates; and the temperature kept down by sponging with cold water and alcohol, and giving aconite and antipyretics with judgment. Celiotomy will be required if suppuration has occured, and in cases of tubercular peritonitis the abdomen should be opened and flushed with hot water freely.

The remaining papers in this issue are:

"Contributions to the Histology and Histogenesis of Sarcoma of the Uterus," by J. Whitridge Williams, M. D.

"An interesting Case of Vaginal Hysterectomy, with Remarks on Carcinoma Uteri," by Angus MacKinnon, M. D.

THE ANNALS OF GYNÆCOLOGY AND PÆDIATRY.

for June. Dr. Reuben Peterson contributes an article on

Strangulated Umbilical Hernia.

In regard to the determination of the amount of injury the bowel has received by the constriction, he suggests that the injured segment be enveloped in hot sponges, after releasing the constriction and drawing the bowel out through the incision, and any changes of color in the bowel well closely observed. It should not be decided too hastily that the injury has been permanent, and that an artificial anus must be made. Even should there be dark, necrotic spots remaining after the circulation has returned to the major portion of the affected part, it must be borne in mind that these may be only superficial, and the underlying layers unaffected. Except in extreme cases, he thinks, five or ten minutes can profitably be spent in waiting and observing the re-establishment of the circulation or its failures, the patient in the mean time being kept lightly under the anæsthetic.

In regard to what operative procedures should be adopted when the integrity of the bowel is impared, he is of the opinion that an artificial anus and a subsequent resection will probably give the best results in the hands of those unaccustomed to intestinal surgery. In regard to the prevention of the recurrence of a strangulated hernia, he gives preference to no one method of operating but whatever method he adopted, the endeavor must be to accurately approximate the fascia transversalis. If this be accomplished and the wound heal by first inprimary union, the chances are largely against a recurrence of the hernia.

Dr. Herman E. Hayd discusses the

Treatment of Tubal Disease,

giving as his opinion that in acute septic or gonorrhœal endo-salpingitis, the most radical measures must be resorted to early, as these inflammations so rapidly cause total destruction of the tubes and adjacent structures. Therefore dilatation and curettement and uterine drainage, as provided for by Polk's operation, is advised as cutting short the endometritis and aborting the possible salpingo-ovaritis, by preventing further spread of the infection. In the more chronic cases, where the tubes and ovaries are considerably involved, and their component elements thickened and perhaps cystic and filled with serum, blood or pus, salpingotomy or salpingo-oophorectomy is the only hope of relief. In a case with the history of a recent inflammation, with fixation of the uterus and a tender and painful mass on one or both sides of the pelvis, with some rise of temperature, the author advises an expectant plan of treatment. Rest; copious hot vaginal and rectal douches, if grateful and well borne, the inclined decubitus; a poultice to the lower abdomen if there be much pain; and later glycerin tampons, or 15 per cent. ichthyol and glycerin, or 50 per cent. boro glycerin. Painting the vault of the vagina every second or third day with

Churchill's tincture of iodine, or vaginal galvanism, and daily soluble movements from the bowels will often bring about resolution and absorption and a healthy restoration of the organs.

Appended to the paper is a table of operations performed by the author.

Dr. Augustus P. Clarke discusses the

Treatment of Fibromyoma of the Uterus.

The hemorrhage he states can often be kept under control by curetting the cavity of the uterus at intervals. Apostoli's method of galvanism will yield the best results in the interstitial variety on account of the contractions it produces in the fibrils of the muscular tissue of which these tumors are composed more than any other variety. The same is true of the subserous or subperitoneal variety. In tumors of slower growth, the employment of electrolysis may for a time be attended with seeming benefit, but it cannot be long continued without risk of exciting serious inflammation of the parametric tissue, or of superinducing or hastening a malignant degeneration. The removal of the appendages may be of material benefit, though this method does not produce as good results as are obtained by hysterectomy. Electricity should not be employed in tumors situated in the corporeal or fundal portion of the uterus, for later experiences show that the benefits to be derived by its use can best be had in those cases in which the tumor was originally interstitial, and from its position was made up of the muscular element, or was of a subserous or subperitoneal type, and had on account of the presence of an undue proportion of the muscular tissue taken on a rapid growth.

Dr. J. P. Elliott contributes a paper on

The Pathology of Pelvic Inflammation in Women,

in which he adopts the following classification of Dr. McMurtry:

1. Inflammation of the serous and cellular intrapelvic tissues cannot be separated clinically or histologically, hence they cannot be properly distinguished by the terms parametritis and perimatritis.

2. The pelvic cellulitis of Emmet, which corresponds to the peri uterine phlegmon of Nonat, is as rare as inflammation of the cellular tissue elsewhere.

3. Pelvic inflammation is, generally speaking, peritonitis resulting from disease of the ovaries or Fallopian tubes, or both.

4. Pelvic peritonitis presents every grade of activity, and is always symptomatic, never idiopathic.

We may name three general groups of these inflammations:

(*a*) Those of puerperal origin.

(*b*) Those of gonorrhœal origin.

(*c*) Those caused by infections carried to the endometrium by unclean instruments, tents, or medicinal agents, or those arising from traumatism.

The remaining paper in this issue is "The Indications for Cæsarean Section" by Dr. B. C. Hirst.

Among the editorials is a resume of the opinions of various authorities on the subject of castration in nervous diseases. The resume is prepared by Dr. Joseph Price.

IN THE SANITARIAN

for June appears an article by Dr. Charles Smart, U. S. Army, on

Drinking Water.

The lecturer stated that the main point of interest in regard to drinking water was the presence or absence of the germs of malaria, typhoid fever and cholera. When the germs of any one of these is present in water, there are also present certain organic compounds, as these germs generally enter water in sewage. It is for this reason that the chemist is appealed to to test for nitrogen compounds, etc., Inorganic salts are of course injurious if present in great quantity, but when that percentage is reached we can recognize their presence by taste.

Waters were classified as: rain or cistern waters, surface waters, subsoil or ground waters. Cistern water should be perefctly pure if moderate care is used in its collection and storage. Surface water is healthy or not according to the condition of the ground drained; but is so often unfit for use, that health officers generally condemn it.

The deep or subterranean waters are those that drain from high ground by sinking into the edges of a porus stratum underlying the clay of the bottom lands. When tapped by deep boring they are often found so full of mineral salts as to be unfit for use, but may be perfectly pure, such as that found in Memphis.

Statistics were given to show the comparative prevalence of typhoid fever in cities inversely proportional to the purity of their drinking water.

In the same number are articles by Dr. Samuel W. Abbott on "Recent Progress in Public Hygiene and Preventine Medicine;" by Dr. G. P. Coon, on "Needful Precautions Against the Spread of Communicable Diseases by Travel;" a suggestion that by means of a car or part of a car reserved for invalids, and built with special view to its being readily cleaned after use, the other passengers could be protected from contagion and a traveler need not go to his berth knowing that the last occupant had been a consumptive, or a convalescent from some infectious disease. "The berkshire Mills," by Dr. William Henry Thayer; "Sanitary Topography, Climate, and Mineral Springs of Maryland and Delaware," by Dr. A. U. Bell; "The Nation's Sin of Omission," by Dr. T. J. Bennett.

During the epidemic of cholera at Hamburg, Dr. N. Simmonds captured flies in a dissecting room where bodies were being examined and found numerous comma bacilli in them. It was ascertained that in one hour and a half these germs disappeared.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M. D.

THERAPEUTICS.

New Remedies of Last Year.

The following extract from *Treat's Medical Annual*, section of "Progress in Pharmacy," furnishes briefly some accurate facts on the latest new remedies.

Chloralose, a compound of glucose and chloral; recommended as a hypnotic, and favorably reported on after clinical trials by European and American investigators; has recently received a serious set-back, however, by adverse reports—including cases of poisoning.

Crystallin, a compound of either and methyl-alcohol, a substitute for collodium; the advantages claimed for it are, that it evaporates more slowly than collodium, forms a more durable and pliable or elastic covering, etc.

Di-iodform, a compound of carbon and iodine (about 96 per cent of latter); a new, odorless substitute for iodoform, non-irritating, and as good healing antiseptic as iodoform. Ferratin, presenting artifically the "iron component of animal food," a dietetic iron preparation from egg albumen and iron salts with the aid of alkalies; containing 7 per cent of iron; a brownish-red powder, almost odorless and tasteless. Easily assimilable, nourishing and strengthening, it is a food and blood tonic, highly recommended for anemia, chlorosis, loss of appetite, etc.

Sanguinal, another blood preparation, said to be a defibrinated, boiled- down blood with hemoglobin, consisting of 46 parts natural blood-salts, 10 parts oxyhemoglobin, and 44 parts peptonized muscle albumen; it can hardly be a savory morsel, and is dispensed in palatable tablets—for that reason, probably.

Somatose belongs in the same category; it is a nutritive product, 1 part representing 6 parts beef; occurs in granular powder form, easily soluble in water —so that it can be readily added to drink or food without patient's knowledge; is quickly absorbed, light on the stomach, and strengthens and nourishes the system naturally.

Abrastol is a new intestinal antiseptic, a sulphonated naphtol derivative.

Gallanol, a substitute for pyrogallol, is produced by boiling tannin and anilin oil together, with other manipulation. It is applied in eczemas, psoriasis and other skin affections; reports are favorable, and it has come into extended use in a surprisingly short time.

Formalin is a new disinfectant; a powerful bactericide, but comparatively non-toxic; safer to employ in ½ to 1 per cent solution than the usual to arbolic acid or sublimate solutions.

Thiosapol, new base for cosmetic and dermatological preparations; it is a sulfur compound of the same class as thiol; introduced in the form of creams, toilet soaps, etc.

Tetra-ethyl-ammonium has been introduced as a uric acid solvent, the discovery of this propertybeing the result of a systematic and extensive research at the Edison laboratory. Dr. Peterson, of New York, sponsored the new remedy, publishing a long climical report with most encouraging results and great promise; but no interest has been manifested in the matter by the profession generally.

Piperazin, the powerful uric acid solvent introduced a year before by Schering, has meanwhile become more popular and is now in extensive use here and in Europe. The therapeutic value of this remedy is now assured, and record of successful application is growing; and not only is applied for gout, rheumatism, gravel and other similar affections due to uric acid diathesis, but diabetes and other dieases are yielding to the influence of its solvent powders. Pharmacists should make a note of this correct dispensing method; piperazin-Schering, 10 grammes; water, 150 grammes. Make solution, and direct patient to dissolve a tablespoonful (10 grammes) each morning in a litre (quart) of water and drink during the day. That is the only correct dosage and method of exhibiting the drug.

Salipyrin, although several years old, has only been in use here during the past year; still, in this short time it has made good progress and is now in considerable use. A drawback to its success has been the practice in some places of trying to make salipyrin by simply mixing salicylic acid and antipyrin; this produces a mixture entirely different in physiological and therapeutical effects from the definite chemical compound. Salipyrin has found a wide field of application, as antipyretic, anti-rheumatic, analgesic (particularly in painful menstrual disorders), etc.; but its special recommendation has been as almost a specific for influenza, as a valuable aid in aborting incipient diphtheria, as a ready and effective remedy for simple coughs, colds, catarrhs, etc. The literature on salipyrin has accumulated rapidly during the past year, and all reports indicate that it is a most valuable agent.

MEDICINE.

Treatment of Red Nose.

Helbing (*Therap. Monatshefte*, January, 1894), calls attention to the treatment of red nose—a condition of little importance, it is true, but decidedly annoying to the possessor. The condition he refers to is the bluish-red color of some noses upon remaining for sometime in a warm room, coming in from the cold winter air, etc. The treatment he advises is the systematic application of the galvanic current. Both poles are applied to the nose and are continually moved about. The strength of the current he has regulated

by the amount of burning complained of by the patient. Five to eight elements of an ordinary battery suffice. If the patient is very sensitive, the anode may be applied to the zygoma and the nose gently stroked with the cathode. This application is followed by an intense redness of the skin, which lasts for an interval of two to forty-eight hours. Too strong currents must be avoided on account of excessive irritation they produce. The applications are repeated at intervals of two or three days. The method requires patience, and a considerable number applications (at least ten to fifteen), and the author has had to hold as many as thirty sittings. The author has used the method in thirty-one cases, and always with success, and gives report of two of the more obstinate cases.—*Cincin. Lancet-Clinic.*

Lithæmia.

On March 6th Professor DaCosta gave by invitation a lecture in the Medical Hall of the University of Pennsylvania on the Pathology of Lithæmia, and, taking this for a foundation, he indicated a line of treatment which, coming from such an authority, is worthy of full consideration. The term "lithæmia," as applied to a morbid state, involves much more than the presence in the blood of a mere excess of lithic or uric acid. Lithæmia is a modified from of gout, and appears to be the form in which gout particularly manifests itself in America; but in lithæmia deposits of urates in the vicinity of joints are not observed, and attacks of acute arthritis of toes and fingers do not occur. There may be, however, a painless enlargement of the terminal finger joints, especially in elderly people, with impairment of function. The cardiac hypertrophy and kidney degeneration of true gout do not belong to the clinical history of lithæmia. The blood tension may be increased, but it is so to a less degree than in gout, and the arteries do not exhibit the atheromatous condition that characterizes the graver form of the disorder. The spmptoms have already been described by the same authority. The main points are the impaired digestion, muscular pains, neuralgic attacks and pains in the tendons, indisposition to exertion, irritability of temper, depression of spirits, frequent and severe attacks of vertigo and migraine, sleeplessness, and drowiness during the day. The main factor in treatment is regulation of the diet. The food ought to be mainly vegetable. Green vegetables (especially asparagus), fresh fruits, stale or toasted bread, with the white mear of poultry and fish, should constitute the chief items. An excess of carbohydates, especially sugar, should be avoided. The only drink to be allowed is water, and sufficient quantities should be taken to flush the kidneys. Mineral waters may be ordered to accomplish the same purpose, Alcohol should be positively excluded. Exercise in the open air is also on important part of the treatment. But little drug treatment is required. Saline laxatives are very useful. A combination of lithium carbonate (2 gr,) with extract of nux vomica (½ gr,) given after meals is of special value. In attacks of lithæmic migraine a few doses of a mineral acid, it is claimed, will often cause the symptoms to disappear.—*Lancet.*

Physiology by Byron Robinson.

Few physicians realize the great usefulness of the omentum in abdominal surgery, except those who experiment on the abdominal viscera of animals or frequently open the human abdomen, The omentum is very small in infants according to my dissections. In adults it varies considerably. In some bodies we find it rolled and tucked up in one corner of the abdomen, especially if it contains but little fat. In most cadavers we find it covering the whole of the viscera below the the liver and stomach. In one body, Dr. Waite and myself post-mortemed last month, the heavy, thick omentum covered all the abdomen below the liver and stomach like a quilt tucked in around a bed. It almost equaled a second abdominal wall. It was a great and excellent protection of underlying viscera. The omentum is a double fold of peritoneum extending from the stomach to the colon. It generally descends into the pelvic cavity before it reflects to pass upon the abdomen to cover the colon. The uses of the omentum are: (a) it prevents the invasion of infection. As soon as infection gains entrance to the peritoneal cavity the omentum immediately circumscribes it. The omentum enables the inflammation to be coralled. Barriers are at once thrown out and the infectious, invader is checked. It quickly circumscribes perforated wounds of the intestines, appendix or other viscera. It is a kind of man-of-war, ready at all times to move on an infectious invader of the peritoneum. The omentum brooks no foreign invasion of infection. It assumes pleu-potentiary power over every peritoneal intruder and imprisons him early on the border. The omentum is the surgeon's best friend. It saves life of many a patient. (b) It prevents the adhesion of the intestines to the abdominal wall. It is common in autopsies to find the intestine adherent to the wall of the abdomen where the omentum accidentally happened to be absent. The adhesion of the intestine to any point is apt to destroy peristalsis and thus prevent the onward fæceal current. Nipping of the circumference of the gut from adhesions is just the same as Litter's hernia. (c) It heals wounds. I have shot many dogs and found in autopsies or in operating that the folds of the omentum had dropped into the wound and in many cases had completely healed it. The omentum has vital interests in the economy.

Nitrite of Amyl and Trinitrin in Hystero Epilepsy.

It is perhaps not out of place to call attention to a bit of recent experience with nitrite of amyl and nitro-glycerine in hystero-epilepsy

Case under consideration that of Laura W., was first seen with Dr. C. in February, 1891. It exhibited with classical precision the well-known striking features of the disease, consisting of a period of muscular tetanization, loss of consciousness, noisy respiration and deglutition, succeeded by the minor classical movements rapidly giving place to a series of exaggerated motions or contortions; body taking posture extreme opisthotonos, which would be exchanged for that of pleuros-thotonos with feet extended, toes pointed and distorted, displaying the *le pied bot hysterique* of Charcot. One attack would follow another with intervals of quiescence of variable length; consciousness would be restored and no complaint be made, except of severe pain in left ovary and left supra-mammary space. Pressure in either situation named had the effect of lessening or arresting the paroxysm, though the experiment of inducing their return by repeating the application was not tried for fear of provoked unfriendly comment.

Between February, 1891, and November, 1893, there occurred two slight attacks, the last of which was a single convulsion, and was due to an injury to the foot, caused by stepping on a nail. November 22, 1893, she was again seized; onset as violent in all its details as in first attack. She was found in extreme opisthotonos. Chloroform was administered, causing slight relaxation. It was repeated again and again without appreciable effect. A two-drop pearl of nitrite of amyl was crushed in the folds of a napkin and held to the nose. Almost immediately muscles rigid as iron bars relaxed, teeth and lips parted, arms fell limp by the sides, the body resumed a natural position bathed in profuse perspiration, and lastly the patient turned on her side and dropped into unbroken slumber, from which she did not awaken for many hours. In the next twenty-four hours there was no repetition, but at the end of that time there occurred the last of the series, which was easily controlled by a single two-drop pearl.

On the following day, and each day thereafter, she has received three doses of nitroglycerin of 1-250 of a grain each, tablet triturates of that strength being employed, which no doubt has kept off subsequent attacks. To date (Dec. 8th) there has been no recurrence and none is expected, as she is able to be up all day and attend to light household duties, and complains less of suffering in ovary and breast, and says she feels much stronger and better in every way than during convalescence after any previous attack.—*R. B. Mc. Call, M. D., in American Theapist.*

SURGERY.

Intestinal Approximation.

In an article in the New York *Medical Record* on this subject, Dr. J. B. Murphy records a long number of cases and draws the following conclusions:

1. The more rapidly the operation is performed, the less the danger from shock.
2. The less the manipulation and exposure of the intestine, the less the danger of infection, post-operative paralysis, and adhesions.
3. The more uniform and continuous the pressure at approximation, the greater the assurance of adhesion and the less the liability of infiltration.
4. A line of approximation is as good as half an inch.
5. Mechanical means in the last five years have produced better results than the suture, in both lateral and end-to-end approximations.
6. The mortality in end-to-end approximations is much less than in lateral apposition, and should always be given the preference.
7. The more perfect the juxtaposition of the various layers, the less the interposition of fibrous tissue, and the more complete the regeneration across the line of union.
8. The juxtaposition of the similar histological layers of the wall of the intestine is an assurance against cicatricial contraction.
9. The more extensive the approximation surface, the larger the fibrous deposit, the greater the contraction.
10. The contraction with end-to-end is less than with lateral approximation.

An Italian physician says that strontium bromide is particularly valuable in gastric affections, especially acute catarrh, which, he says, show anew the remarkably favorable action of the drug. Carselli uses a syrup made by dissolving thirty grains of strontium bromide in a mixture of a fluid ounce of syrup of bitter orange peel and three fluid ounces and a half of distilled lettuce water. This amount is to be taken daily in three doses, during and after meals. It stops the vomiting and lessens pain. It is thought to act both directly upon the nervous system and as an antiseptic, arresting fermentation and thereby reducing the flatulent distension that gives rise to the pain.

ARMY AND NAVY.

CHANGES IN THE U. S. ARMY FROM JUNE 24 1894, to JULY 7, 1894.

Captain Louis S. Tesson, Assistant Surgeon, is relieved from duty at Jefferson Barracks, Missouri, upon the arrival of Captain Charles B. Ewing, Assistant Surgeon, and ordered to duty as Attending Surgeon and Examiner of Recruits, Chicago, Ills., relieving Captain Daniel M. Appel, Assistant Surgeon.

Captain Appel on being thus relieved, ordered to Fort Porter, N. Y., for duty, relieving Major Curtis E. Price, Surgeon.

Major Price on being thus relieved is ordered to Fort Custer, Montana, for duty, re-

lieving Captain Peter R. Egan, Assistant Surgeon.

By direction of the President, the retirement from active service, June 13, 1894, of Colonel Bernard J. D. Irwin, Assistant Surgeon General, is announced.

Major George H. Torney, Surgeon, is relieved from duty as Attending Surgeon and Examiner of Recruits, at Philadelphia, Pa., and will report in person to the Superintendent U. S. Military Academy, West Point, N. Y., for duty at that post, relieving Major Philip F. Harvey, Surgeon, who after being thus relieved will report to the Commanding Officer, Plattsburg Barracks, N. Y., for duty at that post.

First Lieutenant Charles Wilcox, Assistant Surgeon, relieved from duty at Angel Island, Cal., and ordered to Presidio of San Francisco, Cal., for duty, relieving First Lieutenant Harlan E. McVay, Assistant Surgeon.

Lieutenant McVay, on being thus relieved, ordered to Alcatraz Island, Cal., for duty, relieving Captain Ogden Rafferty, Assistant Surgeon.

Captain Rafferty, on being thus relieved, ordered to Benicia Barracks, Cal., for duty, relieving Major Joseph B. Girard, Surgeon.

Major Girard on being thus relieved, ordered to duty at Presidio of San Francisco, Cal.

Lieutenant Colonel Johnson V. D. Middleton, Deputy Surgeon General, is relieved from duty at the Presidio of San Francisco, Cal., and will report to the Commanding General Department of California, for duty as Medical Director of that Department, relieving Lieutenant Colonel, Albert Hartsuff, Department Surgeon General.

Lieutenant Colonel Hartsuff on being thus relieved, will report in person to the Commanding General Department of the Missouri, for duty as Medical Director of that department.

Leave of absence for two months, to take effect upon the return of Major Calvin DeWitt, Surgeon to Fort Leavenworth, Kansas, is granted First Lieutenant William F. Lippitt, Jr., Assistant Surgeon.

Leave of absence for one month to take effect on or about the July 1st, 1894, is granted Captain Guy L. Edie, Assistant Snrgeon.

PROMOTIONS.

Lieutenant Colonel Joseph P. Wright, Deputy Surgeon General to be Assistant Surgeon General, with the rank of Colonel, May 16, 1894.

Major Alfred A. Woodhull, Surgeon, to be Deputy Surgeon General, with the rank of Lieutenant Colonel, May 16, 1894.

Major John S. Billings, Surgeon, to be Deputy Surgeon General, with the rank of Lieutenant Colonel, June 6, 1894.

Captain William R. Hall, Assistant Surgeon, to be Surgeon, with the rank of Major, May 16, 1894.

Captain George H. Torney, Assistant Surgeon, to be Surgeon, with the rank of Major, June 6, 1894.

NEWS AND MISCELLANY.

American Academy of Medicine.

XIXTH ANNUAL MEETING—PRELIMINARY NOTICE.

The XIXth Annual Meeting of the American Academy of Medicine will be held at the "Waumbek," Jefferson, N. H., on Wednesday and Thursday, August 29th and 30th, 1894. The greater part of the time is to be devoted to the discussion of certain problems relating to the Medico-social Relations of the Medical Profession to the "Dependent Classes." The following papers may be expected:

"The Retrogressives: What Produces Them; Classification." Bayard Holmes, Chicago, Ill.

"Importance of the Study of the Subject to the Profession." Charles McIntire, Easton, Pa.

"The Provident Dispensary in England." H. Webster Jones, London, England.

Title to be announced. J. A. Spalding, Portland, Me.

"Assistance and Care for the Blind." Charles A. Oliver, Philadelphia.

"Prevention of Blindness." Benjamin Lee, Philadelphia.

"Present Status of Legislation for the Prevention of Blindness from Infantile Ophthalmia." Lucien Howe, Buffalo.

"Senile Dementia and Testimentary Capacity." J. N. Whittaker, Cincinnati.

Title to be announced. Gershom H. Hill, Independence, Ia.

"What Agencies Conspire to Check Development in the minds of Children?" J. Madison Taylor, Philadelphia.

"The Medical Service of the U. S. Pension Bureau." P. S. Conner, Cincinnati.

"Physical Training for Delinquents." Helen C. Putnam, Providence, R. I.

"Government Commission instead of State License." J. D. Kelly, New Haven, Conn.

"The Relation of Food Adulterations to the Dependent Classes." Henry Leffmann, Philadelphia.

Title to be announced. G. M. Gould, Philadelphia, President's Address.

Title to be announced. F. H. Gerrish, Portland, Me.

Several additional papers have been provisionally promised, if they can be read they will appear in the completed program.

Arrangements have been made for a special excursion from New York and Boston and return at reduced rates. A choice is offered of an eleven days excursion, including most of the expenses, or of returning immediately at the close of the meeting, and is open to any one desirous of attending the meeting, whether members of the Academy or not. Any additional information about the meeting or the excursion may be obtained from

CHARLES McINTIRE, *Secretary*,
Easton, Pa.